



A STUDY OF ORGANISATION AND WORKING OF BHARAT HEAVY ELECTRICALS LIMITED

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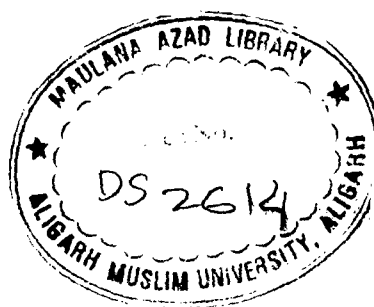
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(MOHD. YONUS ALI KHAN)

PREFACE

Regional imbalances, lack of social justice and absence of basic and infrastructural industries infrastructure were the dominant features of the Indian economy during British Raj. It was against this back-ground that the Indian planners thought of initiating economic development through public sector enterprises. Over the period it has been observed that various public sector units working in different basic industries and areas have widened the base for further expansion for accelerated economic growth and now they may be considered as the backbone of the Indian economy.

No doubt the Country has gone a long way but still much more is needed. It has been identified that achievement of self sufficiency in intermediate industrial products, generation of energy and power equipments etc. are of vital importance. For the rapid industrialization of the country an accelerated growth in the generation of commercial energy, improvement in the quality of power available to consumers and reduction in transmission and distribution losses can be brought about if more efficient power plants and transmission equipment become available.

Today BHEL is the largest manufacturing enterprise of its kind in India. It ranks among the top twelve manufacturers of power plants equipments in the world. BHEL has also made its presence felt in a variety of areas other

than power sector, e.g. industry, transportation, oil and gases non conventional energy resources and telecommunication etc.

With a vast reservoir of manufacturing skills and techniques, the BHEL family of 75000 comprises a good team of engineers, scientists, managers artisans and other technicians. They act in a well co-ordinated way under the line and staff type of organisational set up.

However it can not be claimed that BHEL has been successful in developing a comprehensive organisational set up which may be termed as the best. Further, the over all performance of BHEL has also been erratic and the emerging challenges are substantially high under the present environment instigated by new economic policy. It is against this back drop that the researcher has been stimulated to undertake the proposed project entitled " The organisation and working of BHEL "

FORMAT OF THE PROJECT :

The present study contains four chapters. The first chapter is exclusively devoted to make an in-depth stud. of the concept of the organisational setup. Certain elements related to organisation have also been discussed e.g; division of labour, establishment of relationship, organisational chart and structure and its efficiency and efficacy etc. This chapter the problem of the research and also gives a survey of literature on the subject.

The second chapter briefly takes up the task of throwing light on growth and developmental aspects of BHEL since its inception in 1956 . Along with this comprehensive mention has also been made of the items produced by BHEL. On the basis of "Pilot Research" conducted by the researcher it has interestingly been pointed out that BHEL kept on changing its product line in accordance with the changing economic requirements.

The second chapter^{also} explains the organisational structure of BHEL. This chapter also looks into the working of BHEL, at different levels. It further deal with the modern tool of SWOT analysis to identify the different strengths, weaknesses, opportunities and threats to the organisation.

In the third chapter efforts have been made to critically analyse the working and performance of BHEL. The different aspects like production, sales and profitability have been analysed. The chapter also throws light on the industrial relations obtaining in this organisation.

The fourth chapters gives a resume of the findings and conclusions of the study. This chapter also provides certain suggestions for solving the problems which the BHEL is facing.

OBJECTIVES OF THE STUDY:

Objectives of this study may be summarised in the following few lines:-

- i- The BHEL being one of the oldest and largest enterprise both, from the point of view of year of establishment, capital investment, number of employees and sales etc., the development of resources of energy depends to a large extent on the performance of BHEL. Thus a study of BHEL is made from the point of view of analysing its organisation and working trends will have a direct impact on the countrys power sector.
- ii- To analyse that power equipments are changing in nature. How far the BHEL have successfully diversified its products and services according to the needs of power industry;
- iii- To study the existing organisational setup and suggest the measures for its improvement; and
- iv- To suggest ways and means to create better working environment.

HYPOTHESES:

On the basis of "Pilot Research" conducted by the researcher the following hypotheses have been formulated and are given as below-

- i- BHEL has been identified as an important public sector organisation having direct bearing on the power sector of the Country;
- ii- Its overall performance during the period under study is erratic;
- iii- BHEL is diversifying its product line according to the

changing requirements of the power sector; and

iv- There are certain flaws in the organisational set up of BHEL and due improvements are the need of the day.

METHODOLOGY:

The working of this project is essentially based on the secondary data made available from the secondary sources such as annual reports, auditor reports, fact at a glance and other documents and reports of BHEL . The informations and data have also been collected with the help of journals, newspapers, periodicals and other governments publications etc.

To make the real understanding of the problems at BHEL, I have also visited certain units of BHEL, interviewed a few executives and also have discussions to make myself acquainted with the various problems that the BHEL is facing

Thus different statistical tools have been applied on the data collected from the secondary sources in the systematic order and interpretation have been made by the researcher on the basis of additional information obtained through various discussions and an attempt has been made to reach certain conclusions.

However, because of certain inherent limitations of secondary sources of statistics and tendency of manipulating the facts by the employees, hundred percent authenticity of interpreted results cannot be guaranteed.

CHAPTER-1

INTRODUCTION

INTRODUCTION

The term organisation may be defined as a group activity of persons seeking common goals. In other word, it is a structure or a mechanism to enable individuals to work together. The oldest form of organisation is family where different members work as part of organisation units. It may also be considered to be the simplest and most informal type of organisation as human society developed more existence.

Various authors define organisation in different ways and some of these definitions are examined here to have a clear idea as to what organisation stands for. Allen defines organisation as the process of identifying and grouping the work to be performed, defining and delegating the responsibility and authority and establishing a pattern of relationship for the purpose of enabling people to work most effectively to accomplish the objectives of an industrial organisation¹. According to brown organisation is defined as the part which each member of an enterprise is expected to perform and the relation between such members to the end that their concerted endeavor shall be most effective for the purpose of the enterprise.²

1. Allen a louis, Management and organisation Mc graw Hall, Kogakusha, Ltd. Tokyo, 1958, p.57.

2 . Alvin brown, organisation. A formation of the principle, hibbert printing Company. New York 1945, p.6.

The word organisation is also used in the sense of structure or mechanism that enables two things to work effectively. Joseph L. Massie defines organisation as "The structure and process by which a corporate body allocates its tasks among its members, identifies relationships and integrates its activities towards common objectives" ¹

George Terry defines organisational structure as 'a diagrammatical form which shows important aspects of an organisation including the major functions and relative authority of each employee who is in charge of each respective function' ²

Strauss and Sayles have defined organisation structure as more than series of inter connected boxes and lines on a chart ³

On the basis of the definitions given above an organisation is recognised as a managerial activity effecting human relations. It determines as to who will have the authority and what different individuals in the system are supposed to do. Individuals are assigned jobs and are given a common goal to achieve. Thus organisation structure

1. Massie Joseph, L. Essential of management Prentice Hall, Englewood cliffs 1964, p 46.

2. Terry George : Principle of management Richards Toruine ; Home wood 1972, p378

3. STRAUSS and Sayles, Personal. The human problems of management, Prentice Hall, New Delhi 1968 p365

is a frame work to integrate its various components and to coordinate the endeavor, An organisation has three basic characteristics:

- A. Division of labour
- B. Levels of authority and responsibility.
- C. Establishment of relationship

A.DIVISION OF LABOUR :-

The concept of division of labour is as old as human existence. Its importance has been constantly increasing and in a modern era it is indispensable and essential for promoting specialisation, increasing efficiency, improving skills, avoiding contradiction and saving resources by avoiding overlapping of jobs attaining better coordination developing understanding etc.

B.LEVELS OF AUTHORITY AND RESPONSIBILITY:-

It can also be termed as hierarchy of organisation structure. It means that there must be some way to secure compliance of individual members of the group in contributing their efforts towards the common goal. The organisation is supposed to identify the superior and subordinates separately. There should be competent authority and levels of subordinates should be properly identified. If communication gap prevails in the organisation, it is likely that the act of employees will be knitted unless the individuals will have direct responsibility towards their

superiors, employees may act in a irresponsible manners, and the dream to achieve common organisational targets will be ruined.

C. ESTABLISHMENT OF RELATIONSHIP:-

The essence of an organisation is the nature , type and form of relationship that exist between various components of an organisation. How are individuals going to work or an organised group ? The appropriate organisational system must be capable to define the relationship of all the individuals of the organisation.

For smooth and constructive activities establishment of proper relationship is vital. This relationship may be of vertical and horizontal nature. It may further be added that a healthy organisational structure should also include some more properties namely the capability to frame rules, norms , procedure, identification of skilled labour and the due placement. People in an organisation do not start working together, automatically unless they are controlled by rules and norms. The organisation should also find out the right people to perform the right jobs . The abilities and capabilities of individual should be identified and placement should be accordingly.

In any organisation planning and forecasting are essential for survival. It may be pointed out that all the organisational activities bear an element of human

factor whether we talk about the division of labour, control planning etc., the human factors is always an integral part of the scene which need constant vigil and due relationship is the important element which help to coordinate the organisational activities. Thus Allen has also defined it as a process of identifying and grasping of work to be performed, defining and delegating responsibility and authority and establishing relationship for the purpose of enabling people to work most effectively and accomplish the objectives.

ORGANISATION STRUCTURE

Organisation structure shows who has whom under his command or who has authority over whom in the organisation. It can be termed as the authority responsibility relationship for co-ordinating the activities for an organisation.

On the whole structuring of an organisation involves specifying authority along with fixation of responsibility. If the literature is renewed we find that three types of organisation structure prevail namely line organisation, functional organisation line and staff organisation.

The line organisation is oldest one and is still used by smaller entrepreneur. Under this system authority flows from the man at the top to the lowest man vertically. In

line organisation the business unit may be divided into various departments headed by departmental heads. Every departmental head receive orders from the higher authority and passes them to their subordinates supervisors. The supervisors then communicate the same to the workers this makes the line of authority's straight and vertical. However because of limited span of control this type of organisational structure is not feasible in a bigger organisation. To cop up with this problem functional structure of organisation was evolved under which the whole, unit is divided into different departments such as production, personnel, purchasing and finance etc. Each one of these departments would serve the rest of the organisation. The purchase department for instance, would handle on behalf of entire concern or personnel department will receive trained the employees required by all the department.

It will not be out of place to mention that both types of organisation structures stated above posses inherent source of in deficiencies. With the increasing business complex cities another type of structure known as line and staff organisation came into being. Under this system those functions which have direct responsibility for accomplishing the major objectives of the company called line functions. The staff function are supposed to help and assist the line in discharging their responsibility. For

example in a firm engaged in the manufacturing of dyes and chemicals, the work manager who is incharge of production the marketing manager and finance manager may be considered line officials. Other functions like personnel management, quality control, Public relations and accounting may be called as staff functions. The special characteristics of this type of organisation structure is that the managerial personnel are assisted by the advisors. A problem is thought by these advisors and managers together and they reach to specific decision and then only managers are supposed to execute the decisions. However, it is not abiding on the part of managers to follow the advice of such advisors. Sometimes they may even take their own decisions.

ORGANISATIONAL CHART

In order to establish a complete net work of authority and responsibility which is an important element to be dealt with utmost care. its proper depiction generate the necessity of compiling an organisational chart assuring that all the significant activities of the organisation are graphically presented. The organisation chart shows the hierarchy along with individual positions and establishing authority and accountability.

As and when an organisation expands it needs introduction of greater element of formalisation of relations. Thus each and every organisation develops a chart of its own which may suit it and serve its purpose. No chart

can be designed which serve the purpose of different types of organisation the BHEL, like wise has designed and developed an organisational chart to meet its requirements.

ORGANISATIONAL EFFICIENCY

In the past major concern was to specify the conditions under which an organisation could survive in a particular situation based on used models. Now a days organisation are found as complex dynamic and of problem solving system . In talking about organisational effectiveness one has to look into three aspects (three Ps) namely The persons , the process and product .

What are the effective persons suitable for job ? what is effective process of production and the most important of them are result of organisation . Mostly the answer of these questions are based on a situational approach . Organizational efficiency and effectiveness of organisation can be measured by the degree and the extent of achieving the goals. The efficiency measured in terms of output per unit of input.

The efficiency of the organisation lies is the efficiency of individual employees and their willingness to cooperate in the achievement of the organisational goals thus in ordered to maintain and promote the organisational efficiency, human factor must be considered as a vital

element .Scientific management no doubt helped in achieving higher productivity but invited resentment, hostilities, ,lack of willingness to work and negative behavioral aspects of human system which were not in long run interest of organisation.

So in order to enhance the organisational efficiency the most vital problem is to motivate people so that they give their best to the task .If the employees of the organisation are properly motivated, have jobs satisfaction and training etc.,it is expected that they will strive hard to help the organisation and will show good results in terms of organisation goal. However in addition to this to determine organisational efficiency factors like leadership labour turnover communication participation of employees delegations of authority etc. are also considered.

COMMUNICATION:

The word communication has been derived from the latin word communist which stands for sharing idea in common concern is that is the act of individual to interpret an idea in the manner intended by the speaker or writer . It's importance can be gauged by P.F. Drucker sentence that communication is management¹

1. P.F. Drucker , technology management and society. Pan Books Limited, London 1970 p. 12.

Communication may be classified as formal and informal communication. Formal communication is generally associated with particular communicator and in a particular structure and usually is an black and white . For example when the manager gives the duty chart of his subordinates in writing or even verbally by virtue of superior person, it is formal communication. While informal communication may be simple chart or may be expressed with a gesture node , smile or even silence. For example if an employee completes his work and his boss smile at him satisfaction is communicated informally.

Communication may be defined as an interpersonal contact in which one individual acts and other individuals respond to this action. Earlier communication was considered to be the function of boss to tell the subordinates to listen and act accordingly, but in the present era it is not only boss but all the employees concern actively participate in the process of communication. This organisational chart represent the flow of ideas information between the members stationed at different work places.

On the contrary ineffective communication results in misunderstandings and bickerings between the employees working at different levels which too, causes problems in decisions - making. Many of the cause for taking wrong decisions, organisational conflicts, etc., may be attributed

to the problems of ineffective communication. According to P.F. Drucker Communication in management. During the last half century, being a central concern to various business, the military, public administration, university administration and the communication gap with in institution between groups in society has been widening steadily to the point where it threatens to become an unbridgeable gulf of total misunderstanding. ¹

From the organisation point of view it may be pointed out that success of an organisation is positively correlated to the degree of effectiveness of communication, be it in the informal or formal way.

1. P.F. Drucker, technology management and society, Pan books Ltd, London 1970 P-12.

Formal communication defines the directions of the flow of communication establishing and identifying the strong relationship and co-ordinating the activities of the employees of the unit but to support this formal system of communication, informal communication is also a must. Informal communication is undoubtedly helpful in solidifying the sense of mutual understanding, It also create friendly and healthy environment, where the employees work in a well knitted manner and make the endeavor to achieve the organisation goal.

ROLE OF PARTICIPATION AND DELEGATION IN ORGANISATIONAL EFFECTIVENESS:

Man has always been inquisitive. It is this tendency that he could reach to such commendable heights. Worker can excel in every field wherever they taken interest and the same interest can be created either directly or by way of creating an atmosphere in which they wish to contribute towards organisational goals.

The potential and interest of workers increase if they are given better facilities and if they share the responsibility, profits of the organisation and participate in the management. As it will create a better atmosphere in which there will be no strikes, lockouts, demand for increase in wages etc. which will lead to higher production. It is the workers who really face daily problems in production and it is he who can give due suggestions to the management.

The effectiveness of participative management can be judged by observing the results at different levels in an organisation. Unfortunately in most of the organisations participation is not properly encouraged at the decision making level. The absence of direct participation in decisions of immediate concern to employees in their daily work may be held to be one of the major cause of dissatisfaction which is being increasingly manifested in various ways among workers.¹

Delegation is the instrument of responsibility and authority by one to the other person and consequently ensuring accountability for performance. Delegation is not a process of abdication. The person who delegates his power does not divorce himself from responsibility. Delegation of authority is effected to some extent by the nature of organisational structure and of ten proves to be very beneficial, for instance a structure, with a maximum of administrative decentralisation, tends to reduce the burden of top executives, or higher officials and provide them an opportunity to devote more time for policy formulation and other important works.

1. Source - Labour Management relations series No. 48 (1976)

LEADERSHIP STYLE AND THE ORGANISATIONAL EFFECTIVENESS:

A leader is one who lead the groups. He mixes with people and protects the interest of fellow workers. He has to determine that what parts of his job is to be entrusted to others and which should be performed by himself. A basic step for the leader is to analyze his job and determine, in principle, what he should or should not delegate. He may secure participation of his subordinates in formulating decision. He may make use of both line and staff subordinates in collecting and analyzing data, evaluating alternatives and making decision. The leader desires to know the opinion of his subordinates and ideas on the problems and try to make constructive use of them. Rensis likert's research findings also conform the superiority of democratic and participative style of leadership over other styles. A good leader must also reserve authority for control, that is, for evaluating the work accomplished. From the data he secures he is responsible for adjusting plans as required to achieve maximum effectiveness.

Thus there is no doubt that managers who allow and provide their subordinates the opportunity to freely express their views can influence better. The employees should be made to feel that they are some thing special, not just the run of mill. It follows that the leader who wants to get the work done by his group should be able to motivate people to

do what he wants to be done, willingly and enthusiastically, Taylor believed that the paramount objective of an organisation should be low unit costs, high wages and improved and standardized working conditions. Improved working conditions include healthy atmosphere of factory, better machines education, training and medical facilities etc.

On the contrary feeling among the employees regarding distrust, unreasonable pressure may lead to low productivity. It depends on the leader how to deal with workers so that the efficiency of organisation increases. The leader should have, faith, and self control and a positive approach. He must believe in his subordinates to allow them to go to the point of targets if necessary without interference. He must restrict himself to giving counsel and advice and insist that his subordinates make the choice of course of action according to his power preference and abilities. Motivation of people also depends to a large extent upon the leader. Motivation in itself stimulates a person to perform the job in a better way so as to receive reward or gain experience as a result of performing well.

A proper motivation policy should be adopted by the organisation. Victor also recommends this fact by asserting that the satisfaction of an employee is determined by how closely the actual rewards compare to what the worker feels he deserves.¹ If the leader knows, how to direct others without arousing offense or resentment and if he is able to secure obedience without destroying initiative and creativity he can motivate his subordinates. Rewards may be classified into two parts intrinsic and extrinsic. The intrinsic rewards includes better status, responsibility along with authority and position. The extrinsic rewards are related to pay and financial incentives. Intrinsic incentives leads to fulfill the psychological needs where as extrinsic incentives fulfill the need of money. These two factors together fulfill the needs that lead to job satisfaction like sense of achievement, recognition, work culture responsibility and advancement etc. Very often money is also used as an important tool of motivation ,as it is easier to use it as a pay package money can be used to satisfy not only physical but very often psychological needs or the others depending upon ,how the individual perceive his environment. Some time to use money as the main incentive in an organisation is to overlook the situational aspects of motivation.

Giller's man comments money derives its compelling power to motivate most people some of the time and some people all the time. In short it can meet the physical needs to a certain extent . Monetary reward generally encourages economically weaker sections more strongly but some times it may even adversely influences the worker suggesting that money is an indispensable even to be used with greater precautions and care . The management should try to make situation analysis to find out whether the monetary rewards will serve the purpose of motivating the employees and steps should be taken accordingly.

Very often only a few affectionate words and participative attitude of management may be the real motivation rather than a monetary rewards. Actually management should concentrate on discovering what basic thing can motivate individuals , and they feel they can satisfy these desires through their jobs. Once it is analysed we can attempt to design their jobs in such a manner that both the individual's goals and the organisation's goals will be achieved through specific likely behavior.

Further matching the job to the individual and individual to the job will definitely lead to increased productivity. Individuals requires certain skills, knowledge and abilities to perform various jobs. Unless they have the

basic abilities to perform their jobs, no amount of so called motivation is going to improve their performance.

Thus the leadership style play an important role in enabling the organisation to function effectively and efficiently. It is the leader and his team that brings glory to an organisation. In the forgoing pages various components of organisation and the different elements which make an organisation dynamic are discussed at length. Thus it can be concluded that for the effective and efficient working of an organisation, division of labour, due delegation of authority, accountability and responsibility along with appropriate relationship between the employer and employees as well as between employees and employees is of vital importance. For a big organisation like BHEL obviously the line and staff type of organisation is better suited. To strengthen the organisational set up at BHEL The important elements like communication, participation of workers delegations of authority and leadership style etc. are briefly discussed with a view to make them as basis of discussion in the remaining chapters of this dissertation.

STATEMENT OF PROBLEMS:

The physical resources can not be made productive unless the human resource is made responsive to the developments. In fact managing people is concerned with methods, techniques and procedures adopted to organise and direct the man power resources for the accomplishment of

organisational and social objectives. The efficiency and effectiveness of an organisation does not depend on one but on multiple factors. The vitality of organisation lies in the willingness of the individuals to co-operate in the accomplishment of its goals. The effectiveness of an organisation is determined by the degree to which it attains its goals. the efficiency of an organisation is measured by the amount of resources consumed per unit of output. Generally the output is closely related to goals but it is not synonymous with organisational goals.

On the whole the structuring of an organisation involves specifying authority, defining lines of communication, setting out areas of delegation and this helps in operating in relatively placid and fairly well defined environment with a fair measures of control. Therefore, it is quite obvious that to be effective and successful an organisation must have a sound organisation structure which enables scientific division of labour, clear identification of authority and responsibility, reduction in work load of top management, smooth direction and communication, effective control and integration, man power utilisation and innovation and diversification in the face of any change in business environments. On the contrary a poor organisational structure brings poor results, when duties and responsibilities are not well defined and managers are allowed to hold and delay matters unnecessarily and delegation is not effective. The consequences being high

cost, low efficiency and poor return on investment, it is needless to state that an organisation like BHEL needs sound organisational structure as it operates under highly competitive and uncertain atmosphere and it outpaces its own technology and products at a very fast rate.

Keeping these facts in mind an attempt will be made in this dissertation to pin point the strengths and weaknesses of the present organisation and working of BHEL. The findings of the study may go a long way in making the organisation and working of BHEL more effective and sound so that it could play a leading role in the development of our economy in general and for laying a sound foundation for infrastructural advancement in particular.

SURVEY OF LITERATURE :

According to different surveys and reports, BHEL has been identified as one of the largest manufacturing enterprise of its kind in India. It is listed amongst the important manufacture~~ss~~s of power plants equipments in the world. BHEL has a growing pressence in a variety of areas, eg. equipments for transport sector, for oil and gasses, for non-conventional energy sources and for telecommunication etc. A number of books, training reports, research papers and articles have been reviewed and surveyed before the start of this project, ^{which has} highlighted the organisational structure and elements affecting working of an organisationan in general and a part of it is related to the BHEL in particular.

Allen A. Louis¹:- in his book entitled "Management and Organisation" has highlighted the organisational structure in general. He has discussed the group behaviour, authority and responsibility establishing the pattern of relationship.

Bhushan Y.K.² :- in his book "Fundamentals of Business Organisation and Management" has dealt with the different types of business systems along with different types organisational structure. In this book the suitability of different organisational structure to the different type of business forms has been emphasised.

Robin Stuart Kotze³ has also written a classic book intituled "Intorduction to organisational behaviour" Situational approach. This book is based on some practical cases and leave the researchers free to apply the theory given in the book. The book further given the behavioural aspects of individuals and the groups as well, and also the basic sources affecting the overall working of the organisation.

Nafees Baig⁴ in his book entitled "Office Organisation

1. Allen a louis, Management and organisation Mcgrow Hall, Kogakusha, Ltd tokyo 1958 p. 57.
2. Bhushan Y.K. Fundamentals of business organisation and Management.
3. Robin Stuart Kotze: Introduction to Organisational behavior a situational approach, Reston Publishing Company, INC. A. Prentice Hall Company, 1980. P.18.
4. Nafees Baig: "Office Organisation and Management Light and Life Publishers, New Delhi. 1979.

and Management" has provided the text for a sound organisational framework.

DAWAR R.S.⁵ : In the book entitled "Personnel Management and Industrial Relations in India" has thrown light on the different elements affecting the human behaviour. He has also discussed the pattern of industrial relation in India and the trade unionism.

SHARMA & CHAUHAN⁶ a study on BHEL Published in 1990 examines the locational factors that have an important bearing on Industry. The author opined that India is rich in natural resources like coal and gases which are the main ingredients for manufacturing heavy Electrical items and the power sector. The author also describes the provincial and regional distribution of Industry and also the installed capacity.

Krishnamurthy C.L.⁷ in his study entitled "Heavy Electricals Industry Problem and Prospects" traces the origin of the Industry and its development before independence. It discussed the demand and supply aspects of items produced by BHEL. The study also covers the details of the installed capacity of public and private sector units

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5. DAWAR R.S. : Personnel Management & Industrial Relations in India, Vikas Publishing House, New Delhi. 1980. P.40.
 6. Sharma & Chauhan: Indian Industries, Shiv Kumar and Co., Bhopal, 1990. P.29.
 7. Krishnamurthy C.L.: Organisation & Financing of Industries in India, Kitab Ghar, Jhansi 1992. P.35.

and lists the new plants approved by the Government. It systematically analysis the effect of the price policy during last few decades. The author is of the view that the Industry is facing many difficulties which require immediate remedial measures any positive results were to be achieved.

VASVASAN T.R. AND CHAUHAN B.S.⁸ : In yet another detailed and systematic study entitled the "Electrical Industry" after liberalisation gives a detailed account of this industry in terms of policies and installed capacity and actual production. This project also gives a detailed account of the import and export performance of the industry. BHEL being a big organisation is given due weightage in the book.

S.C. SAKSENA⁹ In his book entitled "Business Administration and Management" has dealt with the managerial and organisational aspects of an organisation. In this book particular emphasis has been given on management of human resources aspects.

M.S. ANSARI¹⁰ : In the project entitled "Analysis of declining market share of BHEL in the power sector has made an analytical study of market share variances of BHEL in the

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8. Vasvasan T.R. & Chauhan B.S.: Kuthari's Year Book on Business and Industry, Madras, 1993, P.43.
 9. S.C. Saksena: Business Administration and Management, Published by Sahitya Bhawan, Agra, 1985. P.208.
 10. M.S. Ansari: Summer Training Report, Department of Business Administration, A.M.U., Aligarh. 1992.

power sector. The competitors have been pin pointed, reasons have been attributed for such variations and different suggestions have been forwarded to restore BHEL's share in the power sector.

IN A REPORT OF BHEL ENTITLED CORPORATE PLAN FOR THE 1990's¹¹
The future prospects of BHEL with targets in power generation and transmission, industry, transportation, oil gas services, defence business and international operations has been given. It also gives a functional plan relating to investment technology and personnel etc.

A REPORT OF BHEL ENTITLED FACTS AT A GLANCE MARCH 1993¹²
Provides the data base information relating to different products manufactured and supplied by BHEL over the last two decades.

IN THE TEN YEARS DIGEST MARCH 1993¹³ The performance of BHEL different fronts has been provided. It also gives information about financial profile, profit and loss account along with detailed information for the years 1981-82 to 1001-92.

ANNUAL REPORTS 1992¹⁴ Highlights the history of the growth and development of organisation of BHEL. It also provides data base information for the last few years relating to

11. SOURCE: - Corporate Plan for the BHEL, 1990s.

12. SOURCE: - Facts at a Glance of BHEL, March 1993.

13. SOURCE: - Ten Years Digest of BHEL, March 1994.

14. SOURCE: - Annual Reports of BHEL 1992.

different operational aspects of BHEL and at places future targets.

Apart from these, many other books, journals, magazines, periodicals newspapers, training reports, and articles are these which provide sufficient subject matter to complete the study. Different researchers have worked on different aspects of BHEL. The main thrust of the present study is to critically evaluate the "Organisation and working performances of BHEL, the study will also extend suggestions and solutions of the problems from which the organisation is afflicted.

CHAPTER-2

ORGANISATIONAL STRUCTURE OF BHEL

ORGANISATIONAL STRUCTURE
OF
BHARAT HEAVY ELECTRICALS LIMITED

Today even in the so called capitalist economies the public sector plays an important role and in a number of developing economies this sector has been assigned a dominant position. Public sector has filled a wide gap in the economic structure of India and has been responsible for the phenomenal growth of various basic and key industries and promotion of social justice.

At the time of independence, India was lacking in the development of key and basic industries such as steel, power, fuel fertilizer, atomic energy, chemicals, heavy machinery, petrochemicals and heavy electricals and engineering goods etc. Soon after the Independence Government passed the Industrial Policy Resolution in 1948 in which state was to play a progressively active role in the development of industries.

Therefore, after the attainment of independence and the advent of planning, there has been a progressive emphasis on the scope of public sector. Today the public sector enterprises occupy a predominant position.

SOURCE: The researcher has heavily relied in the preparation of this chapter on the secondary data mainly taken from the annual reports of the BHEL and various other specialized reports of this organisation.

With the transformation of government activities from those of pure "Law and order" to promotion of "Public welfare", public enterprises have carved out for themselves a place in the Economy of the country. The passage of Industrial Policy Resolution, 1956 and adoption of the socialistic pattern of society as our national goal, further led to deliberated enlargement of the role of public sector.

The industrial development during last three decades has been largely due to the result of the entrepreneurial efforts of the state. Public sector has not only laid the foundation of heavy industry but has achieved commanding heights in a number of industries. From public utilities and non commercial ventures, it has spread its spectrum to industries such as steel, mineral and metals, petroleum, chemicals, heavy medium and light engineering, transportation equipment, consumer goods and agro-based industries. It has also entered the service field in a big way from trading to industrial and technical consultancy, tourism, development of small industries rehabilitation of sick industries, banking, finance and insurance. It has created the infrastructural base for modern industrial economy and has helped the country in achieving a very large measure self-sufficiency. This chapter provides the organisational structure of BHEL as an important public sector unit in the country.

Bharat Heavy Electricals(India)Ltd. was set up at Bhopal in August 1956 under technical collaboration of M/S AEI, U.K., with a view to attain self sufficiency in

electrical products and power equipments which are vital for industrialisation of the country.

After the Bhopal unit three more units were set up namely

- 1.High Pressure Boiler Plant-Tiruchirapalli (May 1965).
- 2.Heavy Power Equipment Plant- Hyderabad (Dec.1965).
- 3.Heavy Electricals Equipment- Hardwar (Jan.1967).

With the Soviet Union collaborated in the establishment of above No.1 and 2 units and Czechoslovakian assisted in setting up above No. 3 units . The Bharat Heavy Electricals Ltd. has become the largest electrical engineering organisation in the Country having thirteen manufacturing units and service centres besides a large number of project sites spread all over India where its equipments are under erection, enabling it to serve the customers and the country efficiently.The B.H.E.L. also figures amongst the list of largest 500 corporations outside the U.S.A.

BHEL supplies a wide range of products and services for the energy, industry and transportation sectors of the economy. A brief account of the such activities is given below-

As there was need for an integrated approach to the development of power and equipment manufacturing and also with a view to optimally utilize the resource, Heavy Electricals (India) Ltd. Bhopal was merged with B.H.E.L. in 1974.

Present Position:- At present B.H.E.L. has the following 13 manufacturing units.

PLACE	STATES	No. of Plants
1. Bhopal	M.P	1
2. Hardwar	U.P	2
3. Bangalore	Karnataka	1
4. Jagdishpur	U.P	1
5. RaniKhet	U.P	1
6. Varansi	U.P	1
7. Rudrapur	U.P	1
8. Hyderabad	A.P	1
9. Jhansi	U.P	1
10. Tiruchirapalli	Kerala	1
11. Goindwal		1
12. Bombay	Maharashtra	1
Total-		13

To achieve and maintain a leading position as supplier of quality equipment, systems and services to serve the national and international markets in the field of energy, Bharat heavy electrical limited popularly known as BHEL, was established in August 1956. BHEL's history has certain features common to all public enterprises in India. As would be apparent in subsequent discussion these enterprises were set up as a part of a national prospective plan for industrial development. In many cases, self - reliance and import substitution in the vital sectors of

economy were the major goals.

Today BHEL is the largest Engineering and manufacturing enterprise of its kind in of its kind in India. It ranks among the top 12 manufacturers of power plant equipment in the world. Its aim and objectives are as under:-

i. Business Mission :-

To maintain a leading position as suppliers of quality equipment, systems and services in the field of conversion, transmission, utilisation and conservation of energy for application in the areas of electric powers, transportation oil and gas exploration and industries. Its objective is also to utilise company's capabilities and resources to expand business into allied areas and other priority sectors of the economy like defence, communication and electronics.

ii Growth:-

The BHEL has to ensure a steady growth by enhancing the competitive edge of the organisation and maintain its share in the existing business, continuous research & development (R&D) and technology upgradation missions should also be undertakes by BHEL to capture new areas and the world market, so as to fulfill national expectation from BHEL. national expectation from BHEL.

iii. Profitability :-

Another objective of BHEL is to provide a reasonable and adequate return on capital employed, primarily through improvement in operational efficiency, capacity utilisation and productivity provisions for adequate internal resources to be made by the organisation to finance the company's growth and development programmes.

iv. Consumer Focus :-

Another objective is to build a high degree of consumers confidence by providing increased value for their money by providing them goods of international standards, high performance and superior consumers services. ect.

v. Employee Orientation :-

The organisation has also aimed to enable each employee to improve his capabilities, perceive his role and responsibilities and participate and contribute positively to the growth and success of the company. Its plan to invest in human resources continuously and be alive to their needs.

vi. Technology:-

BHEL has also aims to achieve technological excellence in operations by development of indigenous technologies and efficient absorption and adaptation of imported technologies to suit business requirements and

perioties and provide a competitive advantage to the company.

vii. Image:-

To fulfill the expectation which stake holders like government, owner, employee, customers and the country at large have from BHEL. BHEL supplies a wide range of product and services for the energy, industry and transportation sectors of the economy. A brief account of the such activities is given below:-

PRODUCT PROFILE:-

The product manufactured by the BHEL are of diverse range. For easy understanding, these products have been divided into three major business sectors to give it a strong market orientation. The business sectors are power, industry and other operational sectors.

1. POWER SECTOR :-

BHEL occupies a crucial place in the energy sector of our economy. The power sector consists of the thermal, hydro nuclear and energy and contributes nearly 70% of the company turnover of B.H.E.L. power equipments now accounts for 33216 M.W or 62% of the installed capacity of the country. For thermal projects, total turnkey capabilities have been developed. From project approval onwards, the company takes on complete responsibilities, prepares the

feasibility report, does the system design and engineering, manufactures and coordinates, the supply of equipment, right up to its erection and commissioning. The BHEL manufactures boilers and thermal sets upto 500 M.W ratings and has the technology and capacity to produce equipment upto 1000 M.W ratings also. It supports its equipments and systems by providing spares and efficient after sales back up. BHEL always endeavors to improve technology and adapt it to the needs of the Country. This quest has led it to develop several technologies in the house. These includes fluidised bed boilers (bubbling bed and circulating bed) to use low grade high ash abrasive Indian coals and a system for direct ignition of pulverised coal (DIPC) To cut down fuel oil consumption for boilers strats ups. Realising the high potential of natural Gas in India, BHEL has established quickly the capability to manufacture gas turbines upto a unit rating of 30 M.W.

In the field of nuclear power, BHEL manufactures 235 M.W. steam generator and associated auxiliaries which have been supplied to power plant at kalpakkam and Narora. The company has also geared itself for the design and manufacture of 500 M.W. nuclear sets in line with country's nuclear programme .

THE FOLLOWING ITEMS ARE COVERED UP UNDER POWER SECTORS

1. Thermal Sets:-

item produced by BHEL Steam turbines and generators up to 500 M.W.capacity are produced for utility application,while capability to manufacture up to 1000 M.W. unit size is also available

2. Hydro Sets:-

Custom-built conventional hydro turbines of the Kaplan Francis and pelton types with matching generator upto 200 MW are manufactured. Pumps turbines are also designed and manufactured with matching motor-generator-valves-spherical, butterfly and rotary valves. Auxiliaries for hydro station are also manufactured.

3. Mini Micro Hydro Sets:-

Under this category different equipment for nuclear power plants as turbines and generator up to 500 MW capacity are made along with the steam generator for utility up to 500 MW reactor separator, heat exchangers and Pressure vessels are also made and supplied by the BHEL. Equipment for nuclear power plants, turbines and generators up to 500 MW, capacity Reheater/separator, Heat exchangers and pressure vessels.

4. Gas Turbines:-

The BHEL has also produced Gas turbines for industrial utility applications,ranging 3 to 200 MW (ISO).

5. Boilers And Pressure Vessels:-

Some of the important item mentioned below are also manufactured and supplied by BHEL Steam generator's for utilities ranging 30 MW to 500 MW for coal, Lignite oil and natural gas or a combination of these fuels, steam generator for industrial applications range 15 tonnes/hour, to 450 tonnes/hour, using any or a combination of the following fuels, coal, oil, natural gas, industrial gases, and bagasse or waste heat recovery boilers, recovery boilers for paper industry, range from 100 to 1000 tonnes/day of dry solids, pressure vessels, fluidised bed combustion boilers.

6. Heat Exchangers:-

The BHEL also produces surface condensers, low pressure and high pressure heaters, chimney and gland steam condensers along with this coolers, condensers, separators and seal oil regulator tanks for refineries, fertilizer and chemical plants and utility sets, Tray types deaerators for TG sets, steam operated air ejectors etc. are also prepared by BHEL.

7. Boiler Auxiliaries:-

The following are also manufactured and supplied by the BHEL. The BHEL has made satisfactory advance in supplying BOILER AUXILIARIES which are vital for the Power sectors. Some of the important auxiliaries are Fans of single

cubic meters. Similarly Axial impulse fans with capacities ranging 7 cubic meters/sec to 600 cubic meters /sec and a number of other types of fans for cleaning air and removing dust, air heaters are also manufactured which are meant for boilers and process furnaces in wide range of sizes and capacities.

Besides the above product some other important products are in the category like Pulverisers,Electrostatics Precipitators, mechanical separators and Gravimetric feeders etc.

8. Valves And Soot Blowers:-

BHEL is also important manufacturer and supplier of long retractable soot blowers(travel up to 13 MW, wall deslaggers, rotary blowers and temperature probes and related control panels operating on pneumatic, electrical or manual mode. High and medium pressure valves, high pressure and low pressure by pass system, equipment are manufactured by the organisation which are mainly used in safety devices and their demand in near future is expected to go up because of stiffening laws on this front.

Cast and forged steel valves of slide, globe, non-return (swing-check and piston life -check) type for steam ,oil and gas duties upto 600 mm diameters, 250 kg/sq and 540 degree percent temperature are also produced by the organisation. It has also shouldered the responsibility to manufacture High capacity safety valves and automatic

electrical operated pressure relief valves for set pressure upto 200 kg/sq.cm. and temperatures upto 550 degree cent, Safety relief valves for application in power, process and all other industries. Maximum set pressures upto 175 kg/sq.cm and temperatures upto 565 degree cent.

9. Pumps:-

There is a great demand for different type of pumps in power industry e.g. Boiler feed pumps, Boiler Booster Pump, condensate Pumps, Circulating water pump, condensate Booster pump, starting pump oil, emergency oil pump, Lubricating oil pump, stand by oil pump. All these pumps are for various utility applications to suit units up to 660 MW are developed and manufactured and supplied by BHEL.

10. Transformers:-

This is another important item which has a substantial demand and BHEL is the major contributor to the aggregate of different type of transformers e.g. for voltage up to 400 KV, Instruments Transformers, current transformers (upto 400 KV) Electromagnetic voltage transformers (upto 220 KV) and capacity voltage transformers (upto 400 KV), Special Transformers Earthing, Furnace rectifier, freight, loco and AC multiple units transformers, electrostatics precipitators, traction load feeding transformer and cast coil dry type transformers, Transformers and reactors for HVDC, Series and Shunt reactors upto 400 KV etc.

11. Control Gear:-

The BHEL undertake the production and supply of control gears too . The important type of control gears are mentioned below-

- a) Industrial control gear
 - i) controls panels and cubicals for, applications in steel aluminium, cement, paper, rubber coal, sugar and petro-chemicals industries.
 - ii) Liquid rotor starters for slipping induction motor upto 2500 hp.
 - iii) Liquid regulators for variable speed motors.
 - iv) contractors: LT air break type AC contractors for voltages upto 660 KV, LT air break type DC contractors for voltages upto 600 KV, HT vacuum type AC contractors for voltages upto 11 KV
- b) Traction control gear control gear equipment for railways and other traction applications.
- c) Control and Relay Panels controls panels for voltages upto 400 KV and control desks for generating stations and EHV sub-stations. Turbine gauge boards for hydro and thermal sets turbine electricals control cubicals out-door type control panels and marshalling kiosks swinging type synchronising panel and mobile synchronising trolley Transformers tap changer panels.

12. Electricals Machine:-

As per the due requirements of a growing economy

electricals machine too are in great demand. Earlier such items were mainly imported. In the later stage BHEL assumed the responsibility to design ,manufacture and supply the different electricals machines mainly DC General Purpose and Rolling Mill Machines from 100 KW to 19000 KW suitable for operations on voltages upto 1200 V. These are provided with SPDP totally enclosed and duct ventilated enclosures.DC Auxiliaries Mill Motors from 3.7 KW to 190 KW, 230 as per AISE "800 series " also mill duty motors upto 150 KW to AISE "600 Series " or to Russian GOST-184-71 .

It may further be pointed out that BHEL also make induction motors, Squirrel cage and slipring motors ranging from 150 KW to 15000 KW in SPDP,TEEC,CACA and increased safety enclosures suitable for operation on voltages from 400 to 11000 KV Flame-Proof squirrel cage induction motors upto 1600 kW suitable for operation on voltages upto 6600 V can be supplied against specific requirements.They also make AC synchronous motors from 400 KW to 15000 KW suitable for operation on 3 phase voltage from 400 V to 15000 V along with AC alternators from KW to 25000 KW suitable for operation on 3 phase voltages from 400 V to 15000 V.

Synchrnous Condensers are also manufactured by BHEL ranging from 2200 to 10,0,000 KVA for improving stability and power sectors for transmission system. BHEL also design and manufactured custom-made hydrossets of francis, Pelton and Kaplan types for different head discharge combination and site condition.

2. INDUSTRIAL SECTOR:-

BHEL has made contribution to important sectors like cement, fertilizer, refineries, Petro-chemicals, steel, paper mining, and tele-communication. The range of equipment supplied include compressors, high speed industrial drive turbines, industrial boilers, waste-heat boilers electric motors drives and control equipment, high voltage transformers, switchgear, pumps, heat exchangers, valves, seamless tubes and heavy castings and forgings.

BHEL has supplied captive power stations to industrial users based on thermal, industrial or the diesel generator sets. To help the industry, BHEL has developed co generation system and combined cycle systems for better heat utilization and increased thermal efficiency.

BHEL is the major producer of large size thyristor devices-BHEL has begun supplying digital distributed control systems for process industries and power station controls. The sophisticated electronic controls for BHEL equipment which are being increasingly converted to micro-processor based design are manufactured with in the company. BHEL also makes sophisticated simulators for industrial process plants, power plants and other operations.

THE FOLLOWING ITEMS ARE COVERED UNDER INDUSTRIAL SECTORS:-

From 1.5 mm to 120 mm for various industrial application such as for sugar, petrochemicals, steel, paper and cement.

i- Compressors:-

BHEL range of centrifugal compressors cover the MCL series (Pressure up to 40 kg/sq cm and capacity upto 3,50,000 tons cubic meter per hour) and BCL series (pressure upto 800 kg/sq cm and capacity upto 53,000 tons cubic meter per hour) and package SRI series (pressure ratio upto 40 and capacity upto 240,000 ton cubic meter per hour).

ii- TRANSPORTATION:-

BHEL designs, manufactures and supplies electric traction and control equipment for a wide variety of electric and diesel locomotives, underground metro coaches and electric multiple units for suburban trains. Marine turbines for the Indian Navy and diesel generator sets for a variety of uses are also manufactured. BHEL has also started producing AC locomotives for the Indian Railways and diesel shunting locomotives for the industries.

The following items are covered under the transportation Traction Equipment, design, manufacture and supply of Traction motors, Traction generators/Alternators, auxiliary machine, Field Diverting inductive shunts, Eddy currents clutches, transformers rectifiers, control gear items, including electronic equipment for railway applications. AC Loco (3900 H.P., 5000 H.P. under development) and diesel electronic shunting loco 350 H.P. and 2600 H.P., Electric trolley buses, Battery operated buses.

iii- OIL:-

BHEL has been regularly supplying on-shore deep drilling rigs, X-mass tree valves and well heads of O.N.G.C. and oil India. BHEL has also started supplying indiginously developed super deep drilling rigs and desert rigs . Cathodic protection system which is used to prevent erosion of off-shore vessels. Structure and pipelines is also manufactured by the company.

THE FOLLOWING ITEMS ARE COVERED UNDER THE FIELD EQUIPMENT:-

A variety of on-shore rigs, work over rigs, mobile rigs, heli rigs ,desert rigs, for drilling upto depth of 9000 meters complete with matching draw works and other hoising equipments e.g. Rotating equipment ,Mud system including pumps, Mast and substructure, power packs and rig electrics, Rig instrumentation, Rig utilities and accessories and Well head assemblies and christians tree valves etc.

Silicon power rectifier with matching transformers for industrial application like Aluminium Cooper Zinc smelting for elctrolysis in chemical industry, AC/DC Traction Applications. Thyristor convertor & invertor equipment. Static AC variable speed drive systems, Thyristor valve for H.V.D.C. transmission upto 500 K.V. and many more items are produced by BHEL.

BHEL also produces items needed for power stations which are mentioned as below-

Static excitation equipment/Semi-static excitation equipment for thermal, Hydro, nuclear power station and industrial turbo sets, Automatic voltage regulators, electro hydraulic Governor controls, Controls for electrostatics precipitators, controls for H.P./L.P. By pass valves, Furnace safeguard supervisory system, Turbine supervisory system and controls, micro processor based distributed digital control and systems Data acquisition systems. High class power devices e.g. High capacity silicon power diodes, thyristors power devices and solar photo voltaic cells are also manufactured by BHEL.

The organisation undertake to process hot finished and cold drawn seamless steel tubes with a range varying from outer diameter of 14 mm to 159 mm and wall thickness 2 mm to 12.5 mm in carbon steel and low alloy steel to suit ASTM/API and other international specifications, casting and forging of creep resistant alloy steels, stainless steel and other grades of alloy steel etc.

5. TELE -COMMUNICATION:-

BHEL has an entry into communication field with manufacture of EPABX and RAX based on c-dot technology.

BHEL supplies a wide range of transmission products and systems to meet the needs of substations and switchyards. For economic transmission of bulk power over long distances high voltage direct current (H.V.D.C.) Technology is now available.

6. NON-CONVENTIONAL ENERGY SYSTEMS:-

With the changing world scenario of oil supply the development of non-conventional energy systems has become an integral part of Indian planning. Faster development of devices and equipment needed for developing non-conventional energy sector is the need of the day. Again BHEL took the lead and started producing such items-eg. Bio gas operated engines, Wind electric generator upto 200 K.W. ratings, Solar thermal pump, Solar water heating systems, etc.

Technologies for exploiting non-conventional and renewable sources of energy have been developed and commercialised to serve the remote and rural areas. These include wind generators, solar power based lighting and pumps and gohar gas engines. BHEL made solar photo voltaic equipment and wind generators, which have been installed in the Indian station. Dakshin Gangotri in Antartica. BHEL has also developed a reverse osmosis based desalination plant to supply potable water from brackish water sources.

7. DEFENCE:-

The defence requirements of the country are gaining importance under the increasing threats from its neighbours. Further disintegration of USSR has created a supply problem. But again it is BHEL which has started producing even light Aircraft and other defence equipments.

8. SYSTEMS AND SERVICES:-

The BHEL also provide the following _

- Turnkey Power station
- Combined cycle power stations
- Cogeneration and Rehabilitation of power plants
- Substations and switchyards
- H.V.D.C. Transmission system
- Shunt and series compensation system
- Traction/Electric Trolley Buses/Industries Drive controls/Cathodic Protection systems
- Erection, Commissioning, operation and maintenance and consultancy services.
- Cathodic Protection system
- Spares management

9. OTHER ITEMS:-

There are many more items ,then the items discussed above which are designed, manufactured and supplied by BHEL. The names of some of them are given below-

Switchgear of the following types: Minimum oil circuit Breakers (33 KV-220 KV), SF6 circuit Breakers

(132KV-400KV), Vacuum circuit breakers (3.3 KV-33 KV). For various indoor and outdoor applications for voltages ratings upto 400 KV. Bus ducts with associated equipments to suit generators power output of utilities upto 500 M.W. Insulators like Disc/suspension insulators for AC/DC applications ranging from 45 KN to 160 KN electromechanical strength (EMS) for clean and polluted atmospheres, Solid core insulators for 25KV electric traction, Pin and post insulators upto 33 KV for substation equipment rated upto 220 KV, Bushing upto 220 KV, Special ceramics including ceramic liners for process industries. Power capacitors for industrial use upto 250 KV for application upto 400 KV, Coupling/CTV capacitors for high voltage upto 400 KV, Electrolytic and paper capacitors for motor start and motor run duties.

We have been discussing the initiation growth and development of BHEL in the country. In the pages that follow, we will analyse the organisational structure of the BHEL.

Every organisation, be it big or small, requires appropriate type of organisational set up in order to perform its functions with fullest efficiency. Excessive staffing and high degree of decentralisation and delegation of authority in small organisations may lead to chaos. On the other hand excessive centralisation of power in a big organisation will always create problems like unmanageable span of control. BHEL is a big organisation involved in the manufacturing and supplying a number of products. It is felt by the researcher that line organisation is suited for smaller units while functional organisation is better suited for a large one. An effort was made by the researcher in the first chapter to establish that an organisation like BHEL, needs line and staff type of organisational set up. The organisational chart of the company given on the following page number two details the division and grouping of work at the corporate and other levels. The above chart as it is operative in the present BHEL shows that it is a combination of line and staff organisational structure. The organisation is headed by a board of directors consisting of six members. It is the top management organ responsible for policy formulation, its effective implementation, finally overseeing and reviving from time to time. For this purpose the board covers functional areas like i) establishment of the basic policies.

Organisational Chart
as on 31.3.1993

BOARD OF DIRECTORS . (TIRUPATI HEAVY ELECTRICALS
CHAIRMAN AND MANAGING DIRECTOR LIMITED)
MANAGEMENT COMMITTEE

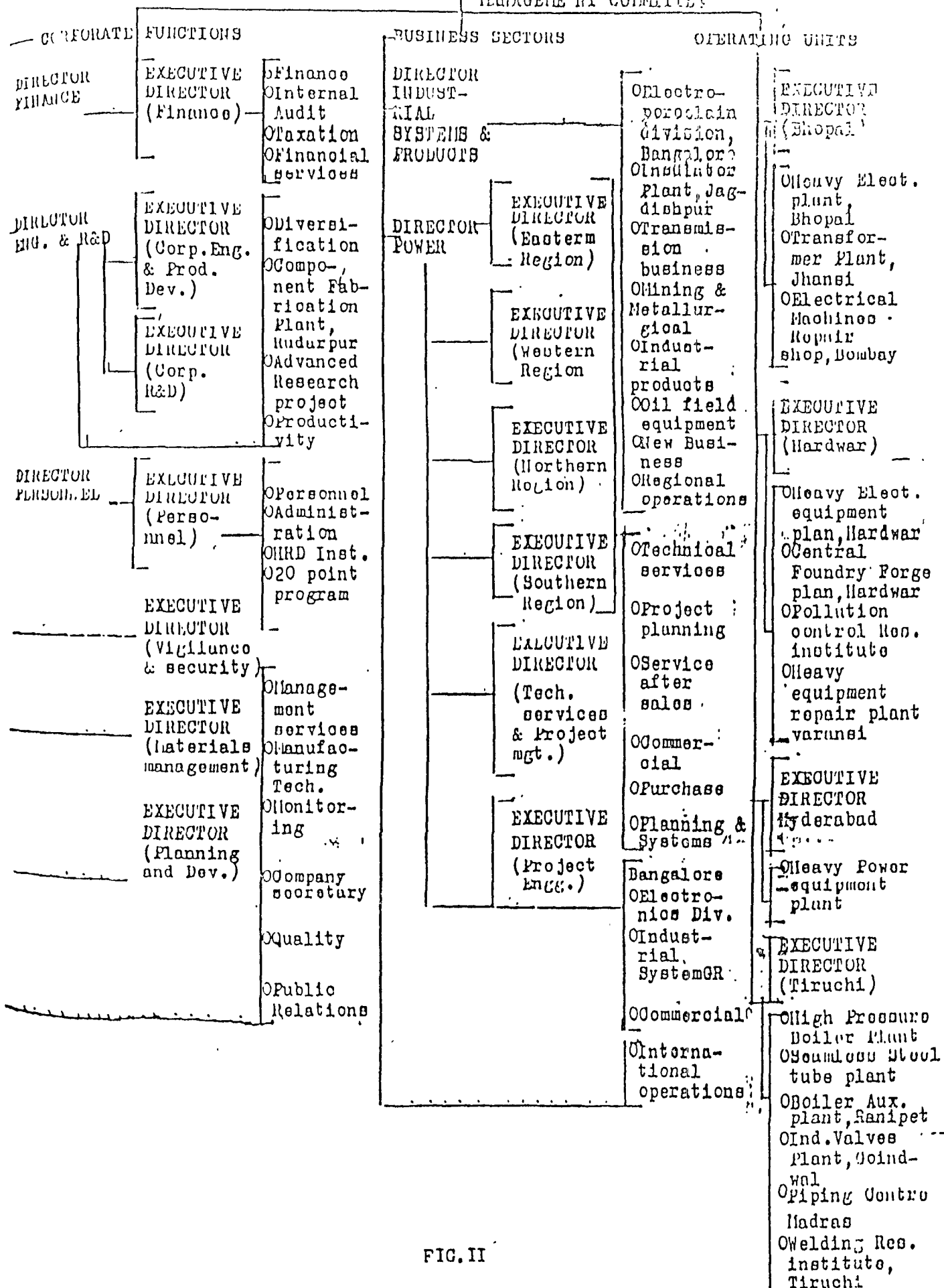


FIG. II

This include the determination of the kind and amount of product or service to be produced, price policy, reorganisation and development schemes, training and research ,programmes, including questions of wage, incentives, morale and consultation with employees maintains and improvement of organisation structure, ii) Decisions on major financial matters, important financial questions relating to new capital investment, recurring and non-recurring expenditure beyond a particular limit, raising of capital, creation and management of reserve funds, consideration of wages and means, position of enterprise etc.,iii) one of the main functions of the board is to secure competent executives to operate the enterprise and to ensure the continuity of able management , iv) the board keeps itself informed of all the necessary details of the enterprise's operations. Such information is necessary for measuring the effectiveness of its policies and for the future planning. Reports on various matters such as research development production , sales, labour relations , financial position, give the board a picture of the enterprise's. So that the correctives steps,if necessary may be taken in time.

The board, comprises of chairman-cum-Managing Director (CMD) Director (Finance), Director (Engineering and Research and Development),Director (Personal),Director (Industrial Systems and Products), Director (Power).

The Chief Executive of the BHEL is the chairman-cum-Managing Director. He is also the head of the Board of Directors. The Chairman who is of course according to the organisation chart assisted by five Directors as detailed above and a management committee is also assisted by a gamut of specialist, i.e. i). Four Ex-Directors of the operating units and three Executives Directors of area of vigilance and security, materials management and planning and development, ii). Four General Managers from the Corporate functions and one General Manager from the Business Sector, iii) One Company Secretary and iv) One Public relations officers. All these personnel are under the direct control of the Chief Executives.

Management committee makes sure that the Board is provided with adequate information to comprehend the matter which comes before it. CMD has to use his skill to draw out directions' contribution to decision, and maintain proper relations between the board and executive management. As chief executive he is responsible to carry out the policies assigned by the board. from the point of views of division of work , the organisation structure of BHEL at the head office can be divided into three major parts i)corporate functions ,ii)Business sectors and iii) operating units. Obviously, the part i) is concerned with the corporate functions which include broadly the functions related with finance ,engineering and research and development and the personnel . There are three Directors in all to take care of

the above functions who are further assisted in achievement of their task by seven Executives Directors in the respective areas .

Directors (Finance) , is the immediate incharge of Executives Director(Finance) and he himself is accountable to the Chairman Managing Director. The Executive Director (Finance) is further, helped in his task by four General Manager on the matters like internal audit, taxation and financial services in order to ensure economic efficiency of the organisation.

The Engineering and development sector is headed by the Director (Engineering and Research and Development). In order to enable him to remain effective he is assisted by the two Executive Directors. These Directors are incharge of the Department of Corporate Engineering and Product Development and Corporate Research and development. Besides these two Executives Directors , the Director (Engineering and Research and Development)is further assisted by four General Managers in respect of Diversification , Component fabrication plant, Rudrapur, Advanced Research Projects and lastly the Productivity.

Director (Personnel) is the chief of the personnel division . He is assisted by one Executive Director (Personnel) who is accountable to the Director (personnel), looks after the activities which Personnel , Administration, Human Resource Development and 20 point program. there is one General Manager in each of the above functions as independent head of his division and reports to

the Executives Director (Personnel) . Taken together , Administration and Personnel department takes care of the following functions at the head office.

- i) To lay down personnel policies
- ii) To decide upon the organisational structure of the plants and divisions.
- iii) To assess the manpower needs and review of manpower position
- iv) To Recruit personnel as per requirements and policies
- v) To arrange for Career planning , training and development of executives , supervisors, and others.
- vi) To evaluate employee performance and to assess potential
- vii) To determine the policies of promotion , transfer and other establishment matters
- viii) To handle grievances and collective bargaining agreement with the trade unions and other industrial relation problems
- ix) To deal with wage and salary administration
- x) To chalk out of welfare scheme and evolve recreational measures
- xi) To maintain personnel records, reports and statistics to assist in reviewing personnel policies
- xii) to ensure that the policies laid down are followed in the plants and divisions, and coordinated in the functioning of the Administration and personnel divisions in the manufacturing units
- xiii) To lay down policies and procedures for employee motivation
- xiv) To maintain morale of the employees

To as regards Executives director (Vigilance and Security) on matters concern with vigilance , he reports to the CMD and for the rest of the matters related with security to the Director (Personnel)

From amongst the cooperate functions, four General Managers namely General Manager (Management Services) ,General Manager (Manufacturing Technology) , General Manager (Quality assurance) and General Manager (Monitoring) (though not named as such in the organisation chart) report directly to the CMD on the matters like management services, manufacturing technology, monitoring and quality assurance. There is one Public Relations Officer (a man of the rank of General Manager) who reports to the CMD. The public relations division headed by Public Relations Officer aims at maintaining good relations with the public and earning goodwill for the enterprise. It also aims at providing a favourable background for the selling efforts and therefore its projects, creates or improves the image of the enterprise before the public. In fact this division is the centre of dissemination of information regarding the policies , programmes and working of the company.

The secretarial division of BHEL is headed by the Company Secretary. He is accountable to the CMD for the smooth running of office work, in fact the company secretary is the pivot around which the whole corporate machinery revolves. Thus he is the liaison officer between directors and staff and outside world dealing with the company .As a

custodian of the company's legality he is responsible for filling of number of returns and preparation of agenda and to arrange for the Board of Directors meeting , statutory meeting and Annual General meeting .For this purpose he is responsible to issue notice in time and maintain documents and to draft the Directors report.

The Second part into which the organisational structure has been divided consists of Business Sector. In this sector the main areas of activities covered are industrial system and products and power. In business sectors there are two Directors ,six Executives directors and eighteen General Managers .The first Director in this sector is the Director (Industrial system and products) . He is accountable to the CMD and is the overall incharge of the electroporcelain division, Bangalore, insulator plant, Jagdishpur, transmission business, transportation business, mining and metallurgical, industrial products, oil field, equipment, new business and regional operations. The above divisions are headed by an independent General Manager who ultimately reports to the Director (Industrial Systems and products).

Another Director in the business sector is the Director (Power). he , in his task is assisted by six Executive Directors and three General Managers. There is one Executive Director for each region of the country who assist the Director (Power) in the areas of technical services,

project planning ,service after sales, commercial , purchases and planning systems. The divisions undertakings the activities in the above areas are headed by independent General Manager reports to all the four Regional Executive Directors in the areas of his operation.

The rest two are the Executive Director (Technical services and projects Management) and the Executive Director (Project management) . These two Executive Director directly report to the Director (Power) . Besides, the above there are still four more General Managers in the business sector , namely General Manager (Electronics division Bangalore), General Manager (Industrial system , General reserve), General Manager (commercial) and General Manager (International operations) . All these four General Managers report to the Director (Power) .

The third part of the organisational structures covers various operating units of BHEL .To look after and run the various units of BHEL spread all over the country there are four Executives Directors who under the direct control of the Chairman-cum-Managing Director. This way they report all the matters concerning their respective units to the CMD. They include, i) Executive Director (Bhopal) . This Executive director heads three units of BHEL namely , Heavy Electrical Plant , Bhopal, Transformer Plant, Jhansi, electrical Machine shop, Bombay. there is one General Manager (Incharge) in each of the above three units who report to the executive director (Bhopal). the second

Executive Director in the operating units is the Executive Director (Hardwar) who besides the Heavy Electrical Equipment Plant, Hardwar and Pollution Control Research Unit, Central Foundry forge Plant, Hardwar also looks after the Heavy equipment repairs plant, Varansi. Similarly, there is one General Manager in each of the above units who help the Executive director in his task and this way directly report to him.

Next is the Executive Director (Hyderabad) who is head of the Heavy Equipment Plant, Hyderabad. At this unit there is one general Manager (Incharge) who helps the executive Director in his task. In the end comes the executive Director (Tiruchi). This Executive Director is the head of the high pressure boiler Plant, Ranikhet, industrial valves plant, Goindwal, piping centre, Madras, Welding Research Institute, Tiruchi. All these units are headed by General Managers who are accountable to the executive director (Tiruchi).

There is a wide network of managers whose prime responsibility is to assets the directorate and to execute the policies formulated by board of directors. Managers are the actual persons who are the accountable for the total production and performance of there respective departments. It is the duty of the managers to see that all the policies have been implemented and that the department perform its functions with full efficiency and also due coordination with the other department of the organisation .

At the floor level mainly the accountability and responsibility rest with the supervisors .They are assigned with the duty of getting the things done by the workers within the specific period. Supervisors are supposed to be a link between workers and managers. In fact the supervisors are the watch dogs and the implementing tools from the management point of view , while they acts as guide , friend and colleague to the workers. However , it will not be inapt to mention that excessive job security very often disturb the line of authority and responsibility in the organisation. Many of the workers or even the men of higher ranks do not comply with the given orders because one intention or the others. Again the floor level workers and supervisors do not make constructive suggestions. Very often they do not work in a cooperative manner, rather they remain isolated and work in a monotonous way. This disturb the BHEL's organisation at floor level and hence the out put in the form of quality product is doubtful.

The Indian Public sector units in different sector of the economy have assumed dominant positions in respect of production sales and even services. There are number of enterprises which sre considered market leaders. Sail is a market leader as its number units commands 40% of the market. The BHEL has a distinction of being a market leader in different product line . Its special features is that in two product i.e. Boilers and hydro turbines.It covers 80.2% and 95.2% respectively of the

total market size. In other products its share in the total market is fairly high and can assume the position of the market leader.

SWOT ANALYSIS:-

Since the inception of BHEL its organisational structure remained as more or less or unchanged with only minor compositional shifts. Whether this type of organisational structure is fit for a unit like BHEL is a question topical interest. In assessing the organisational performance and internal and external environment which an enterprise operates the modern approach of 'SWOT ANALYSIS' is highly useful. SWOT is an arronyn of evaluating the strength, weakness, opportunities and threats for a particular organisation. In the strength and weakness we usually analyse, the have or have not aspect of the organisation. It may also be pointed out that how available resources have been utilised with and if the resources are lacking then what problems have been created. Under this analysis we also discuss the opportunities in hand in near future and possible threats are also pointed out which may be caused by the competitors or sometimes by the unfavorable economic variation and changes¹.

1. Strength:-

1. It is one of the early ventures set up under the public sector involving huge financial outlay.

¹ chartered financial analyst p.87 July 1994, Hyderabad

Presently the organisation has got a distinction of having huge turnover ranging around Rs. 6000 crores in the year 1994.

2. The BHEL occupies a prime of place manufacturing heavy electrical equipment which is a pre-requisite to the industrial development
3. The BHEL employee relatively high level of technology and in this regard is one of the leading enterprise of the nation.
4. From the organisational point of view as indicated in table..4.8 BHEL has distinction of having well qualified and highly equipped personnel. The percentage of some skilled and unskilled workers is 15% (approx.) of the total staff of the organisation.

2.Weakness:-

1. The BHEL has 13 units spread all over the country which often create the problem of proper coordination, communication, delegation of the authority and lack of accountability etc. which have been dealt briefly in the first chapter and no doubt that they are vital for measurement of management.
2. The BHEL in certain product lines enjoy near monopoly position and because of the lack of competition the urge for excellence is dampened.

3. The Return On Investment (ROI) is lesser than what is expected of enterprise like BHEL
4. Despite the life of four decades export performance has been unsatisfactory and erratic. The only year in which the BHEL showed the market increase in exports in 1987-88 as compare to 1986-87 over one decade from 1981-92 there is negative growth in export in terms of value after adjusting the inflationary trend.

3.Opportunities:-

1. India's need for energy through different sources is enormous by the term of the century.....MW electricity will be required. Thermal power and hydro electricity would continue to important for India as the prospect of nuclear energy are not as bright as in some other industrialized nations of the world.BHEL being a market leader would get the opportunities.
2. The BHEL has good potential of capturing foreign markets specially in the Asian and African regions.
3. With the accelerated economic growth and rapid industrialisation along with the fast development of automobile industry, the great demand for the related products, components and equipments etc. is expected to shoot up. Since BHEL also produce related items so it has a chance to materialize the growing opportunities.

4. Threats:-

1. The new economic policy of liberalization and globalisation may have some adverse effects on the BHEL
2. The government is keen to invite foreign investment in generation and transmission in power sector which implies that BHEL had to compete in supplying equipments in competition with more sophisticated and high technology imported equipments.
3. The various state governments are intending to privatise the distribution of electricity. The private sector may not depend on BHEL in meeting its equipments needs for the said purpose.

CONCLUSION :

Hence on the basis of foregoing discussion it may be concluded that the BHEL has adopted the line and staff type of organisation with almost no major changes in the structure over the four decades of its life. To analyse whether it could work efficiently or not ,SWOT analysis has been done by researcher throwing light on strength, weakness opportunities and threats for BHEL. It has been pointed out that despite numerous weakness, BHEL is a powerful public sector unit. With the available resources, if due care is taken, BHEL would definitely be able to meet the emerging challenges. The organisational structure obtaining in the BHEL appears to be upto the mark with emphasis on development, expansion & diversification.

CHAPTER-3

WORKING AND PERFORMANCE OF BHEL

WORKING AND PERFORMANCE OF BHEL

In the preceding chapter, an analysis of the organisational structure of BHEL has been given. The very purpose of enterprises, be it in the public or private or even in the joint sector is lost if it does not compete in the market and does not run effectively, and efficiently. In this chapter the working and performance of BHEL is analysed, keeping in view the various aspects of the organisation, some of which were given in the first chapter in detail. Efficiency of a public limited company like BHEL can not be judged only by its sales and profits but also by the services rendered by the organisation to the society. However, due to constraints of time and resources, the emphasis in this chapter is laid only on some of the aspects like production, sales, exports and profits etc. Efficiency is a wide term and different interpretations can be given. It is mainly an input - output relationship which is used in the sense of arithmetical representation. Efficiency may be improved through improved technology and efficient management of resources in a given time. BHEL is a public sector premier company in India capable of meeting the requirements of many of the core sectors of the Indian economy e.g. Power, industry and transportation etc. The said requirements are met by over thirteen manufacturing Plants of BHEL located in different parts of the country so as to provide efficient services to its customers.

One of the most important customers of BHEL is the power sector as it consist of a large share of its total

sales . It supplies total system of generation , transmission etc. Utilised in thermal hydro and nuclear power stations. Currently over 2/3 of the total turnover of BHEL is utilised by the power sector. The products which are used in power sector are turbines , transformers which bring a huge sum of revenue for BHEL. Its products have also made notable contribution in a number of other industries like cement , chemicals ,fertilizers,mining, petrochemicals ,paper and steel etc. The products line include compressors and turborates, large electric motors and control gear pumps and heat exchangers etc. .Recently BHEL Hardwar unit as stepped up into a different product line i.e. manufacturing of light helicopters.

However it may further be added that the organisation has planned that the share of non power sector business is to be increased to a level of 45-50 percent of the total turnover by 1994-95. In the transport sector its product line includes diesel generators and marine . The organisation is also engaged in the production of broad-gauge AC locomotives, for railways and diesel shunting locomotives, Electric multiple units for suburban trains and complete traction equipment for underground metro coaches.

Technologies for non conventional and renewable sources of energy have been developed to serve remote rural areas which are otherwise inaccessible for conventional power system . It has also started manufacturing products

which were imported during the earlier decades like oil pipelines, vessels cathodic production system x-mass tree valves and wall heads etc. . BHEL is further diversifying in other areas of fabrication equipment fertilizers and petro chemical units. The major plans for newer products are HVDC , ceraline, turset ,castings etc.

In order to assess the performance and efficiency of BHEL ; the following activities of the organisation are analysed as below.

1. Production Performance
- 2.Sales performance
3. Export performance
- 4.Contribution to government exchequer
- 5.Generation of internal resources
- 6.Profitability and liquidity ratio and
- 7.Personnel policies or position of human resources regarding recruitment, training and man power development

(1) Production Performances:

Table no.4.1 shows BHEL's production of different machineries and the parts there of since the year 1981-82 to 1991-92. It may be pointed out that the actual production of different items were upto its rated capacity or even more with an exception of control panels and power transformers etc. Over the decade under consideration the trend of production of different items were erratic and kept on varying with the aggregate demand of markets. During the said decade the overall capacity to produce different items

TABLE - 4.1

INSTALLED CAPACITY AND ACTUAL PRODUCTION (PHYSICAL)

PRODUCTS	1981-82		1982-83		1983-84		1984-85		1985-86		1986-87		1987-88		1988-89		1989-90		1990-91		1991-92	
	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.	CAP.	ACT.
SWITCH GEAR NOS.	1395	1352	1395	762	1395	783	1395	968	1395	1085	1395	1425	1395	1453	1395	1778	1395	1734	2640	1818	2645	1097
CONTROL PANELS NOS.	600	137	600	285	600	261	600	262	600	408	600	666	600	482	600	605	600	488	600	493	600	325
INDL.C/GEAR NOS.	250	595	250	755	250	996	250	1023	250	1520	250	977	250	910	250	648	250	679	250	1025	250	449
TRAC.C/GEAR NOS.	220	215	220	250	220	240	220	264	220	264	220	264	220	277	220	235	220	235	220	238	250	232
TOTAL:S/GEAR C/GEAR NOS.	2465	2299	2465	2052	2465	2493	2465	3277	2465	3277	2465	3332	2465	3109	2465	3136	2465	3136	3710	3574	3740	2103
RECTIFIER NOS.	187	238	187	444	187	261	187	327	187	471	187	654	187	673	187	681	187	603	600	555	600	451
CAPACITORS NOS.	400	330	400	370	4000	328	6500	4110	6500	5410	6500	7176	6500	6590	5600	8450	6500	10130	15000	10220	15000	10020
POWER TRANSFORMER NOS.	6500	4039	6500	3786	6500	7156	6500	5348	6500	592	6500	5550	6500	5646	6500	6368	6500	7087	7500	7908	7500	7333
TRACTION M/C NOS.	1570	1337	1570	1467	1570	1782	1570	2030	1570	2100	2290	2135	2290	2495	2290	2495	2290	2326	2290	2326	2290	2260
INDL. MACHINES NOS.	500	140	500	410	400	214	400	172	400	228	400	252	550	294	550	353	550	332	550	338	550	290
LARGE ELECT. MACHINES NOS.	35	27	35	44	35	33	35	51	35	46	35	54	100	55	100	60	100	64	100	71	100	52
HYDRO SETS/T6 NOS./MW	5/400	14/815	12/720	13/800	12/720	9/399	12/720	10/97	12/720	8/97	12/720	11/353	12/720	11/297	12/720	12/235	12/720	12/638	12/720	9/522	12/720	8/380
THERMAL SETS NOS./MW	6/540	2/248	6/540	2/240	6/540	2/222	6/540	3/466	6/540	3/540	2/446	2/420	6/540	2/446	6/540	2/946	6/540	3/234	6/540	1/236	6/540	3/458

SOURCE : ANNUAL REPORTS OF THE B.H.E.L. & FACTS AT A GLANCE OF BHEL 1993

CAP.=CAPACITY ACT.=ACTUAL

TABLE - 4.2

PRODUCTION

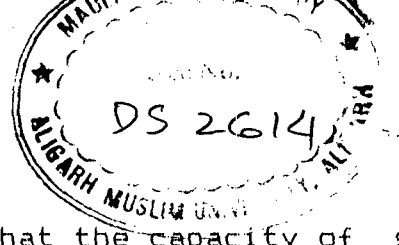
Year	Production	Rs. in lakhs
		Yearly percentile variation
1981-82	9802	
1982-83	11058	12.8
1983-84	12035	8.8
1984-85	13515	12.29
1985-86	15508	15.19
1986-87	18165	16.68
1987-88	10934	4.23
1988-89	20758	9.63
1989-90	21868	5.34
1990-91	23844	9.00
1991-92	25625	7.46

Source: ANNUAL REPORTS OF THE B.H.E.L. & FACTS AT A GLANCE OF BHEL 1993.

could not be reached or increased substantially suggesting that there were no pressure of excessive demand for these items.

The production year of 1991-92 catches particular attention as there was significant decline in the production of almost all the items. If we analyse the reasons it may be said that the said trend was because of our new economic policy. The economic policy has helped in increasing import of foreign machinery on easier terms, and the product BHEL could not compete with machinery coming from highly developed nations. For instance, in the year 1982-83 actual production of control panels grew by 108.02 percent over the previous year, then registered a decline of 34.07 percent during the year 1991-92 over the previous year. The growth of actual production of rectifier during the year 1982-83 over the previous year was 86.55 percent, it again showed a decline of 18.74 percent in the year 1991-92 over the preceding year.

Another influencing factor for the declines in the production level may be the increased political instability which inevitability influenced the working environment of the organisation. No organisation can work to its utmost working capacity in an environment of fear and destruction. Political instability further caused loss of accountability and responsibility and beginning of 1990 "s was undoubtedly an era of political instability and socio-economic distortions.



The table shows that the capacity of switch gear increased from 1395 to 2645 between 1989-91. Its actual production faced sudden decline from 1818 to 1097, a decline of 34.65 percent. Capacity of switch gear and c/gear increased between 1989-91 from 2465 lakhs to 3710 lakhs which reached to a total of 3740 lakhs in 1991 capacitors experienced a sudden rise in terms of capacity installation from 6500 lakhs to 15000 lakhs. Large electric M/C when firstly manufactured on experimental basis with the capacity of 35 lakhs units in 1981-82, but its general acceptance in the market encouraged the organisation to commercialised the item and the production capacity was enhanced to a level as high as 1100 lakhs in 1991-92. Thus we find substantial increase in the capacity of many products. However the most disturbing reflection from the table is that the production could not keep the increasing pace with the rapid increase in the capacity. In fact in same item products like switch gear and c/gear has rather declined from 2299 lakhs in 1981-82 to 2103 lakhs in 1991-92. In 1991-92 every product faced a negative percentile with the exception of traction machines.

Although the actual production has not reached to the level of the installed capacity, even then the overall performance can be considered as satisfactory. The table shows a consistent increase in the value of total production. Over the decade under consideration the total revenue of all products almost tripled. It can further be pointed out that during the first half of 1980's the growth

was mostly at an increasing rate and during these five years there was almost hundred percent increase in the total revenue products of BHEL. The table also suggest the trend of increasing diversification in the field of manufacturing by BHEL. By the year 1992 eight new products appeared on the product horizon of BHEL. When compared to the year 1982, an addition of rupees 939 lakhs to the total revenue of the organisation is evident.

The main items which were produced and which gave a large amount of revenue to BHEL were traction machines, transformers and hydroturbines. The largest share in revenue earning between 1982-92 had been of traction machines transformers. Their share along with others are given in the table no. 4.3 below:

TABLE 4.3

Products	Actual Production (Percentile)			
	1982	1985	1990	1992
Traction M/C	17.08%	27.46%	20.00%	20.80%
Transformers	17.34%	13.22%	13.91%	17.58%
Steam turbine	16.34%	13.67%	10.73%	9.99%
Hydro turbine	13.28%	9.53%	10.72%	11.90%

In traction machines Tam's share in total revenue has increased a little .In transformers we find the share dipped but regained in 1992 .In steam turbine the share has fallen

down because of absolute technology .Traction m/c Tam remains the largest earner because of its consistent demand and is still popular .New products which have emerged in the later years show a consistent and gradual increase in total revenue products as Tool & Gauge whose revenue increased from 121 in 1987 to 504 in 1992 .Such rapid increase in the revenue share has not been shown by any other products. It is a case of high growth which shows that in future it is going to bring a colossal sum of revenue to BHEL.

2. SALES:

The sales of BHEL has increased significantly over the years .From the Table no. 4.4 it may be observed that the sales of turbine has increased from 20.815 lakhs in 1981-82 to 71.071 lakhs in 1991-92 registering an increase of 241 percent during the period .The sales declined only once in the decade i.e. in 1987-88 when it marginally decreased to 47178 from 47248 in 1986-87 .However in the subsequent year of 1988-89 the sales increased to 56393 lakhs and reached to its zenith by the year 1991-92 .Profit before tax also increased from 1934 lakhs in 1981-82 to 5906 lakhs in 1991-92, registering a steady consistent growth during the decade under review .The biggest jump in profit, before tax was between 1988-89 and 1989-90 when it increased from 5344 lakhs to 8587 lakhs i.e. an increase of 60.68 percent .

YEARS	TURN OVER	PROFIT BEFORE TAX	F. OUTPUT TESTING INCO: TO SITES	DISPATCHES TO SITES	ERECTION INCOME	TOTAL FINIS- HED OUTPUT	CHANGE IN W.I.P.	GROSS OUTPUT	CAP & OTHER JOBS	GROSS OUTPUT: CAPACITY JOB
1981-82	20,815	1,934	17,434	2,274	0	19,708	83	19,791	133	19,924
1982-83	27,623	2,715	23,462	2,967	67	26,496	59	26,437	61	26,498
1983-84	26,676	1,226	24,223	1,823	200	26,246	326	26,572	54	26,626
1984-85	30,164	1,748	26,896	3,597	479	30,972	114	31,086	105	31,191
1985-86	36,069	1,915	30,419	4,852	610	35,881	966	36,847	92	36,939
1986-87	47,248	3,449	35,933	5,457	892	42,282	806	41,476	250	41,726
1987-88	47,178	4,154	37,749	8,022	1,623	47,394	435	47,829	310	48,139
1988-89	56,393	5,344	47,572	7,644	2,197	57,413	275	57,138	274	57,412
1989-90	62,660	8,587	56,710	4,874	1,705	63,289	758	64,047	358	64,405
1990-91	67,107	5,898	60,012	5,088	2,235	67,335	1,604	68,939	993	69,932
1991-92	71,071	5,906	65,585	5,138	1,443	72,166	406	72,572	934	73,506
			531,405	63,627	11,836	606,868	10,455	617,323	4,706	622,029

SOURCE: ANNUAL REPORTS OF THE B.H.E.L. & FACTS AT A GLANCE OF THE BHEL 1993

TABLE NO. 4.5

SALES OF THE PRODUCTION DURING THE DECADE 1981-82 TO 1991-92 (Rs in Lakhs)
PERCENTILE VARIATIONS OF THE SALE

YEARS	TURNOVER	PROFIT	F. OUTP	DESPATC	ERECTION	TOTAL F	CHANGE	GROSS	CAP &	GROSS J
:	:	BEFORE	TESTING	TO SITE	INCOME	HED OUT	W.I.P.	OUTPUT	OTHER J	&CAP. J
1981-82										
1982-83	32.71	40.38	34.58	30.47		34.44	-28.92	33.58	-54.14	33.00
1983-84	-3.43	-43.63	3.24	-38.56	198.50	-0.94	452.51	0.51	-11.48	-0.48
1984-85	13.07	42.58	11.03	97.31	139.5	18.01	-95.71	16.99	94.44	17.14
1985-86	19.58	9.55	13.1	34.89	27.35	15.84	747.37	18.53	-12.38	18.43
1986-87	30.99	80.1	18.13	12.47	46.23	17.84	-16.56	12.56	171.74	12.96
1987-88	0.15	20.44	5.05	47.00	81.95	12.09	-46.03	15.32	24.00	15.37
1988-89	19.53	28.65	28.65	-4.71	35.37	21.14	-36.78	19.46	-11.61	19.26
1989-90	11.11	60.68	66.68	-36.24	-22.39	10.23	175.64	12.09	30.66	12.18
1990-91	7.10	-31.31	5.82	4.39	31.85	6.39	111.61	7.64	177.37	8.58
1991-92	5.91	0.13	9.29	0.98	-35.44	7.17	-74.69	5.27	-5.94	5.11

SOURCE : ANNUAL REPORTS OF THE B.H.E.L. & FACTS AT A GLANCE OF THE BHEL 1993

BHEL plans to achieve a turnover of around Rs. 6000 crores by 1994-95 subject to national policy framework which allows the company to utilise the domestic growth opportunities in the power sector, transportation, defence and telecommunication sectors by matching substantial market share through competitive trading or direct ordering on BHEL .

Another major strategy for enhancing the power sector business would be mopping up maximum possible new business from existing power stations through servicing renovation and life extension programmes . This will enhance the turnover of BHEL .For diversifying into the newer fields in order to push up the sales some major schemes like gas turbines for utility and industrial applications, AC locomotives etc. have already been initiated.

In the present era of liberalisation of the economy in a big way it will not be inapt to mention that the multinationals from all over the world may come to india competition will also come and hence the stiff competition is on the cards for BHEL .It may be suggested that if the organisation does not want to lose its markets , it should prepare due strategies beforehand and the quality of product should further be enhanced so as to make it internationally competible .

EXPORTS

As we can see from the given table no.4.6 exports swings ups and down in the last decade. It fell drastically from 1326.27 lakhs in 1983-84 to 441.17 lakhs in 1984-85. It improved slightly in 1985-86 by coming up to 576.58 lakhs but again fall to 324.58 in 86.87. In 1987-88 it increased strangely to 2470.95 lakhs an increase of 661 percent in just one year. But actually this increase was due to increase in deemed exports i.e. contracts of Indian govt.

taken up abroad. In 1990-91 it came up to 5716.05 lakhs and in 1991-92 it was 8556.70. Mostly the orders were of contracts of Indian govt. abroad. The other main importers were Libya, Jordan and Malaysia.

Now the company's target is to achieve an increase in physical exports target by at least 5 percent of turnover by 1994-95, in addition to deemed exports. Depending upon the future possibilities, a long term physical export target of about 10 percent of turnover should be aimed at.

CONTRIBUTION TO GOVERNMENT EXCHEQUER

The Bharat Heavy Electricals Limited has made and is still making substantial contribution to the resources of the govt. exchequer by way of interest on government loan, excise duty, custom duty and other duties. Its details are given below :

It may be observed from the table that the contribution of BHEL to the government exchequer has

TABLE NO.4.6EXPORTS ORDERS EXECUTED

Rs in Lakhs

YEARS	TOTAL	YEARLY VARIATION PERCENTILE
1981-82	7513.92	
1982-83	2018.85	-73.13
1983-84	1326.27	-34.30
1984-85	441.17	-66.67
1985-86	576.58	+30.69
1986-87	324.58	-43.70
1987-88	2470.95	+661.27
1988-89	4139.28	+67.51
1989-90	5443.59	+31.51
1990-91	5716.05	+5.0
1991-92	8556.70	+49.69

increased by over 300 percent , during the decade under review. The excise duty paid by the company increased from Rs 1414 Lakhs in 1981-82 to Rs. 9885 lakhs in 1991-92 representing a total increase of about seven times. Similarly to sales tax paid by the company also increased from Rs. 660 lakhs to 2172 lakhs in 1991-92. However , though registered a growing phenomenon customs duty could not keep the pace of growth with the other duties. Over the decades the custom duties could barely grow less than even two fold.

It may further be pointed out that the share of excise duty and sales tax together was less than 50 percent while the share of customs duty alone was more than 45 percent of the total during the year 1981-82. By the year 1991-92 the scenario changed and the excise duty alone constituted about 60 percent of the total revenue to the government , suggesting that the domestic sales of BHEL items increased rapidly when compared to the flow of goods crossing the political boundaries.

GENERATION OF INTERNAL RESOURCES

Public enterprises can not rely on external sources and government loan and aids etc. for their continued developmental and expansion programmes. They are expected to generate their own resources so as to replace and renew the existing assets and to make them capable to meet their expansion requirements . Some of the important heads of internal resources are given in the following table.

TABLE NO. 4.7CONTRIBUTION TO GOVERNMENT EXCHEQUER (Rs in Lakhs)

REVENUE TO GOVERNMENT					
YEAR	INTEREST ON G.O.I. LOAN	EXCISE DUTY	CUSTOM DUTY	SALES TAX	TOTAL
<hr/>					
1981-82	610	1414	2347	660	5031
1982-83	687	1820	2625	687	5819
1983-84	534	2140	2516	768	5958
1984-85	480	2254	3110	984	6828
1985-86		2934	3940	847	7721
1986-87		3411	3803	1198	8412
1987-88		3897	3190	1148	8235
1988-89		4919	3044	1569	9532
1989-90		8168	4111	1788	14067
1990-91		8638	4312	1977	14927
1991-92		9885	3837	2172	15894
<hr/>					

TABLE NO. 4.8CONTRIBUTION TO GOVERNMENT EXCHEQUER (Rs in Lakhs)

REVENUE TO GOVERNMENT

PERCENTILE TABLE

YEAR	INTEREST ON G.O.I. LOAN	EXCISE DUTY	CUSTOM DUTY	SALES TAX	TOTAL
1981-82					
1982-83	12.62	28.71	11.84	4.09	15.66
1983-84	-22.27	17.58	4.15	11.79	2.39
1984-85	-10.11	5.33	23.61	28.12	14.60
1985-86		30.17	26.69	-13.92	13.08
1986-87		16.25	-2.79	41.44	8.95
1987-88		14.25	-16.12	-4.17	-2.10
1988-89		26.22	-4.58	36.27	15.57
1989-90		66.05	35.05	13.95	47.57
1990-91		5.75	4.89	10.57	6.11
1991-92		14.43	-11.02	9.86	6.48

It is apparent from the table no.4.9 that so far as the internal resources are concerned the position of the BHEL is not very satisfactory. The notional equity which was Rs.3700 lakhs in the year 1982-83 was increased to Rs. 4400 lakhs in the year 1984-85 and thereafter the position remained unchanged. The resources have shrunk considerably from the total of Rs. 1123 lakhs to Rs. 899 lakhs only. The organisation's net income after distributing dividend was considerably high from the mid of 1980 's to 1990-91, while during the year 1991-92 the net income after dividend was exceptionally low.

However the surpluses at BHEL have increased very significantly from a low level of a total surplus of Rs. 17102 lakhs, it swelled to a high level of Rs. 14997 lakhs. Further it may be observed that now the organisation is also charging more depreciation for its assets in order to meet its increasing replacement requirement.

PROFITABILITY AND LIQUIDITY RATIO

No doubt the sole aim of a public enterprise can not be only in profit making only. However an organisation can not afford to provide services and products at the cost of their own growth and profit. In fact on the long run only those organisation become successful which have good financial health. A sick unit is a social parasite and hence profit making is inevitable element for the organisation.

TABLE NO. 4.9GENERATION OF INTERNAL RESOURCES OR SOURCES OF FUNDS: Rs LAKHS

(The data given below is as on 31st of March respective years)

A:	SOURCES	AS ON 31-92	AS ON 31-91	AS ON 31-90	AS ON 31-89	AS ON 31-88	AS ON 31-87	AS ON 31-86	AS ON 31-85	AS ON 31-84	AS ON 31-83
1.	NATINALITY	4400	4400	4400	4400	4400	4400	4400	4400	3912	3700
2.	RESERVES	899	1002	1054	1080	1167	1167	1167	854	719	1123
3.	SURPLUS	14997	15557	12321	10270	7199	5531	2959	2253	1611	1702
4.	FUND FROM OPERATION NET INCOME AFTER DIVIDED AS PER ACCOUNTS	46	3865	2681	3459	2135	2789	1306	1037	101	1983
5.	DEPRECIATION W.D.V.CHARGED	1702	1927	1523	1427	1082	1033	874	726	686	393

It is shown in the table that there is a growth in the profit of before interest and taxes. Profit before interest and taxes was only Rs 2940 lakhs in the year 1984-85 which increased more than two fold and reached to the level of Rs. 7031 lakhs. There is a fall in the payment of interest also suggesting a compositional shift in debt equity ratio. The dividend policy has also been liberalized and the total amount paid in the form of dividend has doubled during the year 1991-92 when compared to the year 1982-83. On the average there is a positive net income after dividend during the year 1991-92. It is further indicated in the table that the ratio of profit before taxes to gross turnover was considerably high in the year 1982-83. In the year 1985-86 the same ratio came to the lowest ebb and there after kept increasing very marginally. Profit before tax to net worth was as high as Rs. 71.23 percent in the year 1982-83 and over the decades its volume shrunked to just half. The ratio of profit to capital employed kept on increasing upto the year 1989-90 but fell by about one third during the next two years. Hence it may be concluded that the over all profitability of BHEL is reduced and remedial measures are the clarion call of the day. However the rosy side of the affairs is that the gross turnover per employee as well as value added per employee has increased considerably suggesting the due increase in the productivity aspects of the employee.

TABLE NO. 4.10

PROFITABILITY AND LIQUIDITY RATIO

(Rs in Lakhs)

STATEMENT	1991-92	1990-91	1989-90	1988-89	1987-88	1986-87	1985-86	1984-85	1983-84	1982-83
-Profit before interest and taxes	7031	7258	6394	6106	4858	4420	3443	2940	3037	4632
-Interest	1125	1360	507	842	704	971	1528	1192	1811	1933
-Profit before taxes	5906	5898	5887	5344	4154	3449	1915	1748	1226	2699
Income tax (share)	4083	2033	2595	1811	1467	660	605	711	1125	716
-Other shares	1775	0	611	74	552	0	4	0	0	0
Net income before dividend	48	3865	2681	3459	2135	2789	1306	1037	101	1983
-Share of dividend	608	630	630	388	467	245	292	260	596	300
-Share of exchange reserve	0	0	0	0	0	0	0	0	0	0
-Net income after dividend	-560	3235	2051	3071	1668	2544	1010	777	-495	1683
PROFITABILITY RATIOS: (%)										
=====										
-Profit before tax to gross turnover	9.69	10.37	9.98	10.83	10.16	10.66	9.24	9.46	11.43	17.58
-Profit before tax to net worth (%)	34.64	34.12	35.97	39.28	38.05	39.83	40.41	39.16	48.65	71.23
-Profit before tax to capital employed (%)	20.94	26.39	31.03	36.63	27.07	21.27	9.99	9.41	6.75	13.87
-Profit before tax to turn over (despatches)%	8.31	8.79	9.40	9.48	8.80	8.16	5.31	5.79	4.60	9.83
Turn over Ratio :										
-Gross turn over per employee (Rs Lakhs)	4.09	3.82	3.48	3.07	2.55	2.19	1.94	1.63	1.38	1.37
-value added per employee (Rs in Lakhs)	1.54	1.40	1.30	1.11	0.89	0.83	0.68	0.66	0.58	0.63

PERSONNEL POLICIES OF BHEL

The aim of purposeful and effective personnel policies is to create and maintain its self discipline working force for the organisation. Likert (1) is of the view that , " Every aspect of a firms ' activities is determined by the competence , motivation and general effectiveness of its human force of all the tasks of management. Managing the human components is the control and most important task , because all else depends upon how well it is done ." while Figuer and Mayors (2) say that " Personnels management is a method of developing potentiality of employees so that they get maximum satisfaction out of their work and give their best effort of the organisation. The personnel policies of the BHEL has a number of important elements including recruitment, promotion , training , placement and performance appraisal and the welfare activities.

1. Recruitment:-

The recruitment policies of an organisation is of vital importance. Being the public enterprise recruitment is done at entry level through written test and personal interview .The mass recruitment is generally done at relatively lower levels while the higher posts are filled up by direct recruitment and promotion of employees already in the service of the organisation.

2. Promotion:

Promotion is the reassignment of job of higher position to an individual. It generally involve greater responsibility and authority accompanied by a change of title coupled with higher pay scales. In principle it is decided by BHEL that promotion should be done solely on the basis of merit considering the efficiency, productivity , good conduct and the punctuality of the employee. However it may be noted that at BHEL due weightage is not given to the

researcher that flattery and political pressure are also instrumental while considering for the promotion.

3. Training:-

Training is provided for increasing the knowledge and skill of people for a specific job. Almost every type of job require certain type and degree of training for the effective performance of their duties and to be productive. The new incumbent who may be highly educated , still require appropriate training to suit the job requirements. In the changing technological environment the training has become an indispensable activity of the organisation. At BHEL specific programme of initial training and education is provided to every new employee. The trainees are exposed to production, to the techniques of the production and to the working culture of the organisation. Training is also provided by organising formal class room training as well as field work. They are further told about the organisation and quality control is also emphasised. Technical training in areas like engineering, manufacturing, quality control and other industrial aspects are also provided depending upon the job requirement of the every employee¹

1. Pigors and Myers; Personnel Administration, 7th Ed. P.308.

INDUSTRIAL RELATIONS

Under the British empire usually the Indian working class was exploited by British employer. The gaining of momentum in the movements aimed for independence give a helping hands for the formation of trade unions to protect the stake of workers. Indian trade union act was passed in 1926 with basic aim of providing protection to the working class to the industry. However because of the extremely liberal provisions of the act regarding registration of the trade union, there is hardly any industrial establishment today, therefore more than one trade union does not exist often it is seen that since the union belongs to different politically motivated groups, they keep on fighting against each other at the cost of the working class. Even they are seen engaged in bitter struggle when any political fails to win in the election concerned. In the process of show-off strength, there had been instances involving human loss of life apart from loss of production and damaged to machinery, properties etc. Such multiplicity of trade union has been largely responsible for failure of working committee, joint management councils workers participation and above collective bargaining.

The multiplicity of trade unions is important features of BHEL. However the general aims and objectives of trade unions operating in different unit of BHEL are given as below.

1. To organise the workers of BHEL for their benefits.
2. To establish a keen and pleasant relationship between the

- workers and management to protect the interest of the workers. 3. To assist the employees and their relatives during time of crisis like unemployment, diseases, old age, industrial disputes.
4. To educate the workmen for their financial social and moral development.
5. To secure the fair condition of life and work through methods permissible under law.
6. To adopt legal, democratic and or peaceful ways and means to and malpractices on the part of the management.
7. To resort, strike when all other consulatory methods fail to effect settlement of the disputes in order to protect the interest of the workers and prevent the management to course and discriminate the weaker sections of the workers.
8. To participate in the following formal and informal participative forms existing in the BHEL unit with a view to maintain good and cordial industrial relations.

STRUCTURE OF UNIONS:

The following is the composition of the working committee of the unions.

President

Vice President

General Secretary

Secretaries for different purposes

Treasurers

Executive members

FINANCE AND FUNDS

1. The General funds of the unions is arranged through membership fee.
2. The general funds of the union can not spend on any other objects approved under sec 15 of the trade union act 1926
3. The account of the union is maintained with a scheduled bank and operated by the treasure jointly either with the general secretary or any secretary of the union.
4. The G.S. of the union is held responsible for submitting the statements of the accounts.
5. Annual statements of accounts is to be audited by a C.A.

MEMBERSHIP

The various rules regarding membership are as follows :-

1. Any person having willingness to become a member of the union applies to the union in the prescribed form along with the annual membership fee.
2. A register containing the name, age, address, and occupation of the members is maintained. It is open for inspection by the members and the registrar of trade union.
3. Any member found indulging in anti-union activities may be given a chance for clarification and on verification his name may be removed from the register of members, if found guilty.
4. No member of any other union is eligible for enrollment as a member of the union at the same time.

GRIEVANCE HANDLING

An agreed worker may present his grievance verbally to his immediate boss who will reply within a day. If the worker remained unsatisfied despite that the given reply than he shall invoke the formal grievance machinery. There is a specific form which is to be filled by the persons agreed within two weeks of the date on which the cause of the grievance arouse and get it registered in the grievance register. Then personnel executive make enquiry and reply within one week of report. If the employee still feel unsatisfied he can make an appeal in the prescribed form and then enquiry will be made by the head of the department. If the worker still feel that justice has not been done to him, he may present his grievance to the grievance committee in the prescribed form. Within seven days of the receipts of the reply from the head of the department and the form shall be submitted through the personnel cell of the division concerned.

The secretary grievance committee will collect all information relevant to grievance and submit full tax of the case before the grievance committee at the earliest. The union representatives for the department of the agreed employee attend the meeting of the committee and all together try to get the things settled in the events of the different opinions among the members of the grievance committee, the views of the members along with relevant proper, are placed before the executive director for a discussion. The decision of the executive director shall

be finalised and the concerned employee is informed of it by the grievance committee.

POSITION OF HUMAN RESOURCES AT BHEL

It is an accepted fact that real long lasting assets with an organisation is the quality and caliber of the employees, working in it. The table given below gives the position of employee in BHEL .

It may be observed from the table no.4.11 that the over all composition of employees working in BHEL , remained more or less unchanged during the decade under review . Though the number of executives and supervisors has increased marginal, but there was decline in total number of supporting staff. Fall in unskilled and Semi skilled employees was even steeper (indicating) that BHEL is preferring skilled employees, artisans for their long term development . Fall in the number of unskilled and some skilled employees may also be attributed to the appropriate training and educational programme run by BHEL.

PERFORMANCE OF APPRAISAL: Once a employee is recruited, trained and placed on a suitable job another important element is performance appraisal. It is a systematic and objective way of judging the relative performance of all the employees of the organisation. Despite the fact that this a vital factor in determining the future potential of work force and to encourage the employees to work harder, not much importance is given to this factor at BHEL. Mainly it

TABLE NO. 4.11

POSITION OF HUMAN RESOURCE

(The data given below is as on 31st of March respective years)

PARTICULARS	AS ON 31.1992.	AS ON 31.1991	AS ON 31.1990.	AS ON 31.1989.	AS ON 31.1988.	AS ON 31.1987.	AS ON 31.1986	AS ON 31.1985.	AS ON 31.1984	AS 31.1983
EXECUTIVE	2076	2047	2136	2092	2067	2031	1985	1883	1834	1838
SUPERVISOR	2892	3058	3150	3316	3374	3261	2796	2846	2742	2522
SUPPORTING TECHNICAL STAFF	885	885	904	915	898	967	1067	1109	1131	1154
ARTISIAN	7751	7793	7788	7788	7473	7429	7306	7313	7346	7515
UNSKILLED AND SEMI SKILLED	2952	3036	3204	3330	3444	3527	3759	3869	4122	4070
OFFICE SUPPORTING STAFF	964	977	1005	1005	1006	1128	1562	1585	4605	1610
SUB TOTAL =	175220	17796	18187	18446	18262	18343	18475	18605	18780	18709
EXECUTIVE TRAINEES	44	60	56	53	40	36	56	50	16	25
SUPPORTING TRAINEES	0	0	0	2	2	0	3	12	24	0
SUB TOTAL=	44	60	56	55	42	36	59	62	40	25
DAILY RATED EMPLOYEE	180	181	157	120	456	542	458	374	383	581
TOTAL=	17744	18037	18400	18621	18760	18921	18992	19041	19203	19315

TABLE NO. 4.12

PERCENTILE TABLE OF HUMAN RESOURCE

(The data given below is as on 31st of March respective years)

PARICULARS	AS ON 31.1992	AS ON 31.1991	AS ON 31.1990	AS ON 31.1989	AS ON 31.1988	AS ON 31.1987	AS ON 31.1986	AS ON 31.1985	AS ON 31.1984
EXECUTIVES	= 1.41	-4.16	2.10	1.21	1.77	3.32	5.42	2.63	-2.22
SUPERVISORS	= -5.43	-2.92	-5.01	-1.72	3.46	16.63	1.76	3.79	8.72
SUPPORTING TECHNICAL STAFF	= -2.10	-1.20	-1.20	1.89	-7.14	-9.37	-3.79	-1.94	-1.99
ARTISIAN	= -5.54	.06	0	4.21	.59	1.68	-1.10	-4.45	-2.25
UNSKILLED AND SEMI SKILLED	= -2.77	-5.24	-3.78	-3.31	-2.35	-6.17	-2.84	-6.14	1.27
OFFICE SUPPORTING STAFF	= -1.33	-2.79	0	-0.99	-10.81	-27.78	-1.51	-1.25	-3.31
SUB TOTAL	= -1.55	-2.15	-1.40	1.00	-4.44	-7.71	-70	-9.93	.37
EXECUTIVE TRAINEES	= -26.66	7.14	5.66	32.5	11.11	-35.71	12	212.5	-36
SUPERVISORS TRAINEES	= 0	0	-1.00	0	0E	-100	-75	-50	0E
SUB TOTAL	= -26.66	7.14	1.818	30.95	16.66	-38.98	-4.83	55	60
DAILY RATED EMPLOYEES	= -.55	15.28	30.83	-73.68	-15.87	18.34	22.45	-2.349	-34.079
TOTAL	= -1.62	-1.97	-1.18	-0.74	-0.85	-0.37	-0.26	-0.84	-0.58

is the immediate boss who make the performance appraisal and report to the higher authority without any check. So, it is almost his pleasure department to decide as to who are the employees to be appraised.

CONCLUSION :

On the basis of foregoing discussion it may be concluded that the over all performance of BHEL on the production and sales front was remarkably good. During the decade under review many of the items were produced at BHEL, even above the level of its total production capacity. However, the export performance and its profitability etc. remained at low profile while the policies relating to human resources remained more or less unchanged.

With increasing liberalisation in the country and expected inflow of foreign investment along with consequential increasing role of multinational corporations in India, it may be foreseen that there will be tough competition for BHEL in the near future. It will not be inept to mention that BHEL should update its technology and should increase its productivity before the things go worse. In the times to come the organisation will not be able to make an escape from competition and it is the efficiency and productivity which will help BHEL to survive and flourish.

CHAPTER-4

CONCLUSIONS AND SUGGESTIONS

CONCLUSIONS AND SUGGESTIONS

The preceding chapters have dealt at length with the problems of industrial development in the infrastructural sector with the help of public sector enterprises. The role, function and performance of BHEL was also highlighted in these chapters. This chapter will give a resume of the findings and conclusions of this study. It will also project the future possibilities of expansion & diversification in the activities of BHEL.

The first major attempt towards industrialization was the Industrial Policy Resolution of 1948. The nation was rather impatient to have an industrial base which provided the genesis for the expansion of the public sector. Besides nationalizing certain key industries and services the state set-up on its own a number of enterprises. This process was given a boost in the second and the subsequent plans, so that a sound infrastructure could be built. It was in this context that the state entered in a big way in setting up heavy and basic industries on its own or in collaboration with other nations and even in a limited way sought the support of foreign private capital. Thus the public sector assumed commanding heights in the economy and was given the crucial role in achieving self sufficiency, making economy self reliant and self generating.

BHEL is one of the early public sector ventures. As it was felt that developing heavy electrical manufacturing units would be vital for providing the power and energy necessary for future growth of industrialization. As the study shows from one unit in 1956 at Bhopal it expanded into thirteen units spread all over the country now.

The researcher has made in depth study of the organisation and working of this important public sector enterprise. In the first chapter the concept of organisation has been briefly analysed. Some important organisational elements viz:

1. Division of labour
2. Levels of authority and responsibility
3. Establishment of relationship
4. Organisational structure
5. Organisational chart
6. Organisational efficiency
7. Communication (formal and informal)
8. Role of participation and delegation in organisational effectiveness
9. Leadership style and organisational effectiveness have been discussed as this discussion has been systematically incorporated in subsequent chapters in order to understand and examine the efficiency of the BHEL. From the organisational point of view there is uniformity in the structure of public and private enterprises to a certain extent. The notable difference

is at the top level where accountability is to be judge by the ultimate owner of the organisation. i.e the nation through the instrumentability of the Parliament. The accountability and autonomy had been the subject of discussion at all levels and a proper synthesis between the two determines the style and functioning. As stated earlier BHEL is one of the important components of the Indian public sector. The history of its growth and development has been fairly encouraging and satisfying. It is of prime importance for attaining the objective of self sufficiency in providing equipment to power plants and similar others installations. It is a market leader in a number of products and as analysed by the researcher it has a great potential in other products and areas.

In the power sector BHEL manufacture Thermal power, Mini-micro sets, hydro sets, gas turbines, boilers and pressure vessels, heat exchangers, boilers auxiliaries. The BHEL has also been involved in the production of such industrial appliances and equipments which are used by sugar, petrochemicals, steel, paper, cement and other industries. For its indispensable services BHEL has got many of the awards like productivity award and international safety award etc.

An appraisal of the organisational structure of BHEL has been made on the basis of certain important

parameters. Its top organisation consisting of the Chairman and the board members are assisted by the General Managers and other corporate functionaries. The managing committee is ceased with the sub-policy matters. The organisation is divided into different divisions each one headed by a director and are assigned specific duties and responsibilities. The middle level management consisting of managers are important link in the line and staff organisation as indicated in the chart. There is no doubt an element of bureaucratization but a close look gives impression that the spirit of enterprise is maintained to a reasonable extent.

On the basis of modern tool of SWOT of strategic management the various strengths, weaknesses, opportunities and threats have been examined . The researcher has concluded that the organisation has certain points of strength e.g. it is one of the early ventures set up under the public sector involving the huge financial out lay. Presently the organisation has got a distinction of having huge turnover ranging around Rs 6000 crores in the year 1994. The BHEL occupies a prime of place in manufacturing heavy electrical equipments which is a pre-requisite to the industrial development. The BHEL employ relatively high level of technology and in this regard is one of the leading enterprises of the nation. It has the potential also and given the necessary support may avail of the opportunities

in future. The major weakness is the dispersal of its units and undue large size. Absence of competition is on the one hand a strength and on the other hand a weakness. It has to be watched as to what would be the impact of policy of liberalisation on the functioning and future growth of BHEL.

In the third chapter an analysis of the working and performance of BHEL is made of the different determinants of the organisational efficiency. The researcher has selected production, sales, exports, generation of internal resources to government exchequer, profitability, liquidity ratio and personnel policies, recruitment, training promotion and industrial relations as important parameters.

During the last four decades of its life the BHEL has diversified its products and has even manufactured helicopters. Almost all types of heavy electrical goods are now produced by this undertaking. As a result of increased production its sales have significantly improved over the years. Unfortunately the record of export performance is not commensurate, except in the year 1986-87, with its domestic sales. The Return On Investment (ROI) has been below average in most of the financial years of its life. Personnel policies in relation to recruitment, training and state of industrial relations are briefly examined and it can be said that the BHEL has a fair record in matters of personnel policies.

On the basis of the foregoing study, the following suggestions are given which are pragmatic and practical.

The available data indicate that BHEL is a market leader in a couple of products. Being the largest manufacturing enterprise in the country it is ranked among the fifteen manufacturers of power plant equipment in the world. It can assume the leadership in other equipments provided its working is improved.

Aspects like entire life cycle project cost taking into account the cost of supply of spare parts, specialized service, overhauling, maintenance needs etc. would have to be suitably projected. Further offer of suitable financial packages, prompt and effective after sales service, joint venture approach etc. should be used as major marketing tools for getting new power plant business. Another major strategy for enhancing the power sector business would be mopping up maximum possible new business for existing power stations through servicing (including spare parts supply), renovation & life extension programmes. With ever increasing population & age of power generating sets in the country, BHEL will have the strategic advantages in this market segment as it can cater to the needs of a large variety/ratings/makes of power stations. Organisational measures to decentralize power sector operations to achieve geographical advantage is a step in this direction.

It would be necessary to maintain a constant interface with the single, dominant customers in defence & transportation areas to ensure development of the nascent business & acceptance of products. Suitable organisational mechanism to give a push to new business development efforts would have to be immediately organised to achieve plan targets.

India is striving hard to have ensured favourable trade in the years to come. No doubt the position of foreign exchange is satisfactory and the country has reserves running into In order to have stable exports we have to lean heavily on high tech based manufactured goods and BHEL can be one of the foreign exchange earners. Focus on target market with selective products and services including software and consultancy services, counter purchase arrangements, acting as suppliers/subcontractors to major collaborators, joint venture arrangements abroad etc., would be some strategies to achieve physical exports amounting to at least 5% of turnover by 1994-95, in addition to deemed exports. Depending upon the future possibilities, along term physical export target of about 10% of turnover should be aimed at. For this end the production technology should be comparable with the leading world manufacturers of the heavy electrical equipments. It is suggested that India should try to explore market in the neighbouring countries.

BHEL has thirteen different units located all over the country. In order to have uniform policies in respect of sales ,technology transfer ,controls and other related matters it would be appropriate to create coordinating agency as is being done in the case of steel by setting up the Steel Authority of India Limited (SAIL).

In view of the growing demand of energy and the emphasis in New Economic Policy (NEP) to encourage foreign equity participation and technical collaboration, it is likely that the total generation of energy will be in the neighborhood of 1,11,000 mega watt. The BHEL has to equip itself to meet this growing demand. for this purpose the BHEL should have more agreements with foreign firms.

The study reveals that there is much scope for improving the personnel policies .Bulk of the higher posts are filled in by promotion from the lower ranks. For a dynamic organisation it is imperative that fresh talent should be searched, located and absorbed at different levels.

The modern management techniques attached great importance to performance appraisal in the organisation. The existing practice is based on the confidential reports, service records of the employees etc. There is an element of subjectivity in these traditional techniques. It is, therefore, suggested that modern self assessment should be adopted to make appraisal objective and unbiased one.

A renewed thrust is to be given to productivity improvement by planning specific projects in the area of value engineering, energy conservation and reduction in material consumption. The procedure and system in all functional and operational areas need a relook in order to reduce response time and improve efficiency and effectiveness. A high decentralised way of working should be aimed at.

Training and development are vital for any programme of human resources development(HRD). In case of BHEL there is much scope of educating and training especially at the middle and upper middle level of management by arranging three-four months short term orientation courses as well as by making transfers from one unit to the other units.

As indicated by table no.4.7 and table no.4.8 the return on investment has not been constantly satisfactory. In fact the proceeds are declining and there is a need for a proper financial discipline so as to make BHEL a commercially viable organisation. In the modern era of rapid technological changes, it is necessary for an organisation to assert itself to adopt new techniques .Obviously a developing economy like India is put to disadvantage because of shortage of resources. But there is no alternative and BHEL has to develop its research and development wing (Research and Development).

These efforts would be adequately backed up by streamlining of various procedures and systems so that manufacturing divisions could have more flexibility in operations and can effectively meet the requirements of the new business, i.e quick response, shorter deliveries and variety of components. One way could be to stock repetitive and standard components and semi-finished items including castings and forgings to cut down procurement cycle and result in faster deliveries.

In conclusion the researcher may venture to add that if the suggestions given above are accepted and adopted by the BHEL, it can go a long way in improving its working. Undoubtedly, BHEL is a very important constituent of the Indian public sector and its efficient management will improve the overall image of the public enterprise in this country. BHEL was established with the obvious purpose of making the economy self reliant and self sufficient in respect of heavy electrical equipments. Industrialization depends on power and power depends on quality equipments which can be met by expansion, diversification and improvements in the organisation and working of BHARAT HEAVY ELECTRICALS LIMITED.

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